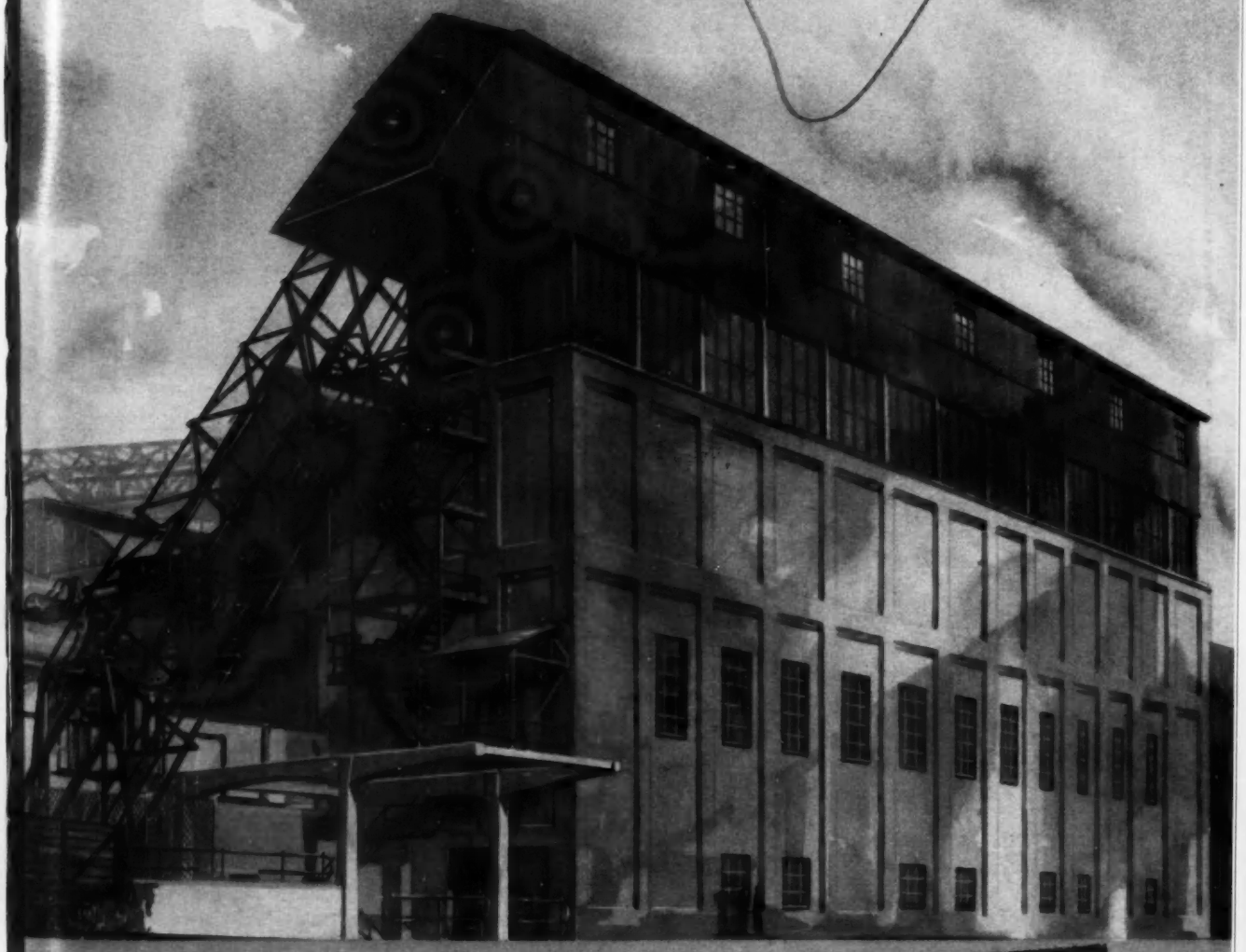
Gas Journal

Vol. 278 106TH YEAR LONDON, APRIL 21, 1954 NO. 4742. PRICE 1/3



PUBLIC LIBRARY
MAY 6 1954
DETROIT

NEW installation of Carburetted Water Gas Plant for the Scottish Gas Board, Dawsholm Works, Glasgow. Initial capacity, 8,400,000 cubic feet per day. Ultimate capacity, 11,200,000 cubic feet per day.

HUMPHREYS & GLASGOW LTD.

HUMGLAS HOUSE · CARLISLE PLACE · LONDON · S.W.1 Telephone: VICtoria 3961

ESTABLISHED 1892

DISTRIBUTION ENGINEERS!

For ALL ROUND SATISFACTION

on your

MAINLAYING CONTRACTS

Specify

UNITED KINGDOM CONSTRUCTION & ENGINEERING COMPANY LTD.

CIVIL ENGINEERING CONTRACTORS

HAMMOND ROAD, KIRKBY INDUSTRIAL ESTATE, LIVERPOOL

TELEPHONE, SIMONSWOOD, 2601 (3 LINES)

110/PAS/2978/58

THE "CL" VALVE FO GAS

DOUBLE-FACED H.P. DESIGN

- CORROSION RESISTING STEEL DOOR.
- SPECIAL RESILIENT NON-METALLIC COMPOSITION SEATS SELF-LUBRICATED.
- SIMPLE AND ROBUST IN CONSTRUCTION.
- POSITIVE IN OPERATION.
- NO WEDGES OR SPRINGS.
- CANNOT JAM — OPEN OR CLOSED.
- SPINDLE CAN BE RE-PACKED IN THE OPEN OR CLOSED POSITION.
- STANDARD TEST PRESSURE 100 LBS. PER SQ. INS. AIR.
- INTERNAL OR EXTERNAL SCREW WITH OR WITHOUT INDICATOR.

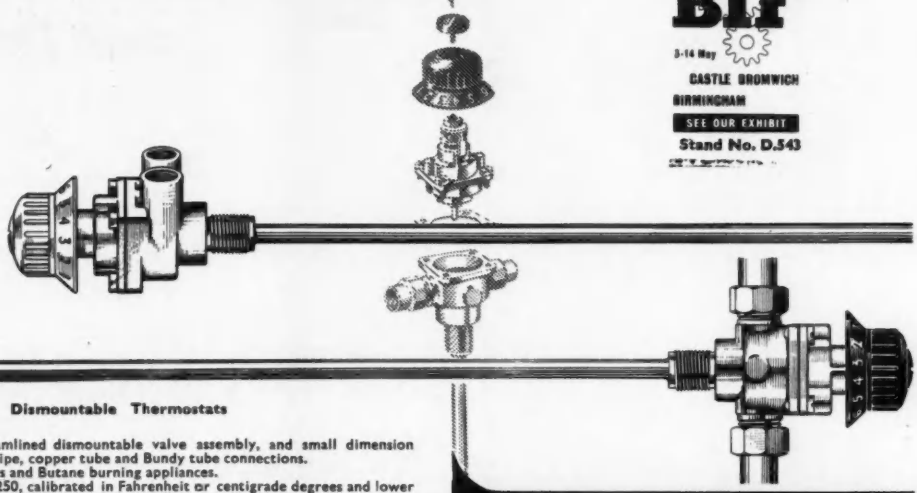
The BRYAN DONKIN CO. LTD

CHESTERFIELD (TEL. 3153) LONDON, MANCHESTER

MEMBER OF THE SOCIETY OF BRITISH GAS INDUSTRIES

DOMESTIC DISMOUNTABLE THERMOSTATS

BIF
3-14 May
CASTLE BROMWICH
BIRMINGHAM
SEE OUR EXHIBIT
Stand No. D.543



Domestic Dismountable Thermostats

Extreme simplicity and economy.
Completely redesigned with streamlined dismountable valve assembly, and small dimension body. Patterns available for iron pipe, copper tube and Bundy tube connections.
Interchangeable models for coal gas and Butane burning appliances.
Dials available calibrated to B.S. 1250, calibrated in Fahrenheit or centigrade degrees and lower temperature ranges for water boilers. Colours to suit all schemes. Engraving for front or side mounting.
Fixed or variable by-pass.
TR. 536 Coal gas thermostats with straight through connections on body.
TR. 536B. Butane thermostats with straight through connections on body.
TR. 541. Coal gas thermostats with "U" type connections.
TR. 541B. Butane gas thermostats with "U" type connections.

Sperzom TRADE MARK

SPERRYN & CO. LTD.

MOORSOM STREET, BIRMINGHAM, 6.
London address: 23, Great Suffolk Street, S.E.1. Telephone: WATerloo 6418

Telephone: ASTON CROSS 4011 (5 lines)

GEORGE GLOVER & CO. LTD.

dependable year-in year-out

DOMESTIC METERS

INDUSTRIAL METERS

TEST METERS

Product of Radiation Ltd.

GAS METERS

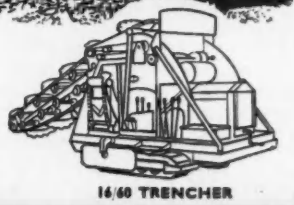
122 KINGS ROAD CHELSEA LONDON S.W.3
BRANCH WORKS: WARRINGTON · LEEDS · MANCHESTER · CARDIFF

12/21 MODEL FOR NARROW TRENCHES

The answer to all your trenching problems

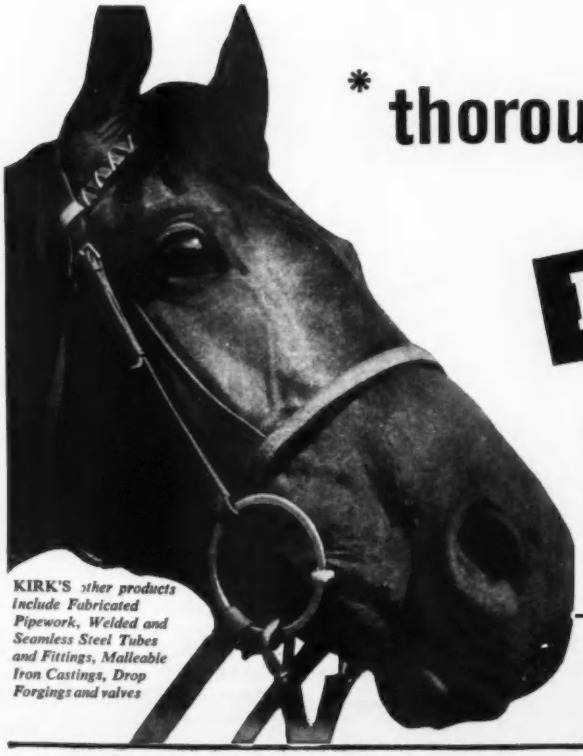
ALLEN *Super Duty* TRENCHERS

For narrow trenches we supply the 12/21 model, and for wide trenches the 16/60 model. Both models are a fine engineering job and capable of standing up to continuous hard work. We shall be pleased to send you further information and fully illustrated brochures on request.



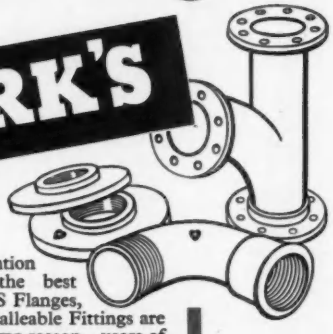
16/60 TRENCHER

JOHN ALLEN & SONS (OXFORD) LTD. COWLEY OXFORD *Tel 77155/6/7*



* **thoroughbred fittings**

by KIRK'S



* Great care and attention to detail produces the best thoroughbreds—KIRK'S Flanges, Flanged Fittings, and Malleable Fittings are thoroughbreds for the same reason—years of expert knowledge goes into their production. KIRK'S craftsmen use only the highest quality materials and modern machines for the perfect finish so essential when utmost reliability is of paramount importance.

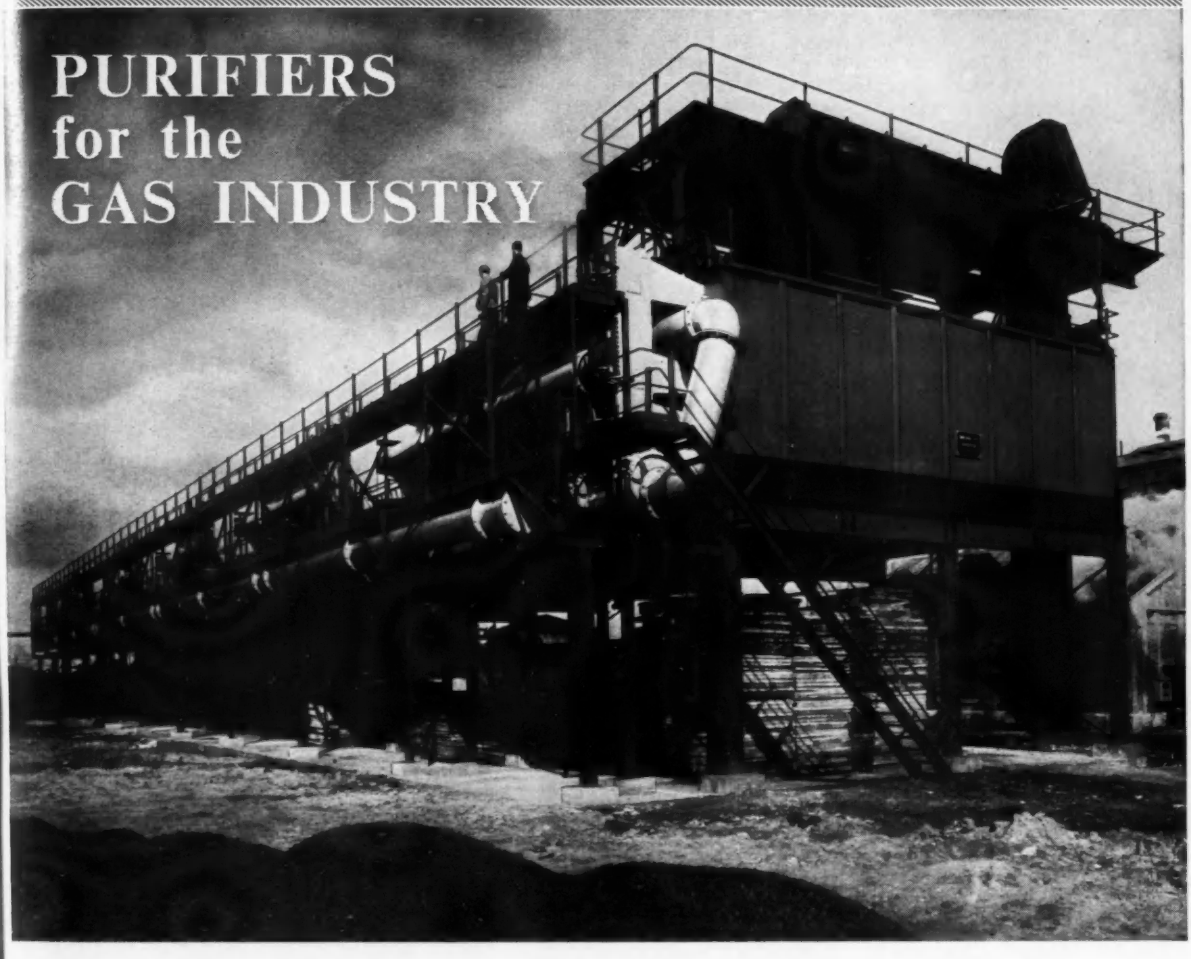
KIRK'S other products include Fabricated Pipework, Welded and Seamless Steel Tubes and Fittings, Malleable Iron Castings, Drop Forgings and valves

KIRK & CO. (TUBES) LTD.
74-82 PARADISE STREET · LONDON · S.E.16
Telephones: BERMONDSEY 3156/7/8 & 3150
also at WALSALL, MANCHESTER & PONTYCLUN

The heart of reliability

TRADE MARK

WHESSOE



The illustration shows a recent installation at Warrington. It consists of five welded steel oxide purifier boxes, each 45 ft. 9 ins. by 35 ft. by 10 ft. deep, and was designed, fabricated and erected by Whessoe to the order of the North Western Gas Board.

The plant treats 6 million cubic feet of gas per day. Whessoe design and erect a wide range of gas plant and welcome enquiries.

WHESSOE *CAPITAL PLANT FOR THE GAS AND COKE OVEN INDUSTRIES*

AN ADVERTISEMENT OF WHESSOE LTD · DARLINGTON · TEL: 5315 (5 lines) · LONDON OFFICE: 25 VICTORIA ST · LONDON · SW1 · TEL: ABBEY 3881
W48

PROTECTION

IN Chemical Works, Gas Works, Refrigerating plants, etc., the necessity for dealing with gas escapes and repair work calls for efficient protection of the men on the job. This is provided, in low concentrations of gas, by the "PURETHA" Respirator, which is comfortable, efficient and simple. Its canisters are coloured according to the gas or group of gases against which they give protection. Full mask and mouthpiece, nose-clip and goggles types.

For protection in confined spaces and high concentrations of gas, the company's well-known types of oxygen and compressed air self contained Breathing Apparatus are available. All other protective devices for the worker are also manufactured and supplied: Smoke helmets, short distance fresh air apparatus, resuscitating apparatus, dust masks, protective clothing, goggles, etc.

DIVING APPARATUS, BREATHING APPARATUS OF ALL TYPES, RESUSCITATING APPARATUS AND ALL INDUSTRIAL SAFETY APPLIANCES

Telephone: Elmbridge 5900

SIEBE, GORMAN & CO. LTD. LONDON

EVERYTHING FOR SAFETY EVERYWHERE

Telegrams: Siebe, Surbiton

TOLWORTH, SURBITON, SURREY

Leadless SPLIT COLLARS

Prov. Patent No. 30578/53

with PATENT SINGLE PIECE MOULDED RUBBER JOINT.

Pass Leadless Split Collars are light in weight and have no glands for adjustment. Fully tested up to 300 p.s.i. hydraulic pressure. Boss can be supplied tapped ½" to 2" B.S.P.

Send for further details.

PASS

GAS AND WATER ENGINEERS

E. PASS & CO. LTD., DENTON, MANCHESTER

Specialists IN UNDERPRESSURE ENGINEERING

Phone: DENTON 3001/2/3 Grams: TOOLS, DENTON, MANCHESTER

dmPA36

COMPLETE GASWORKS PLANTS

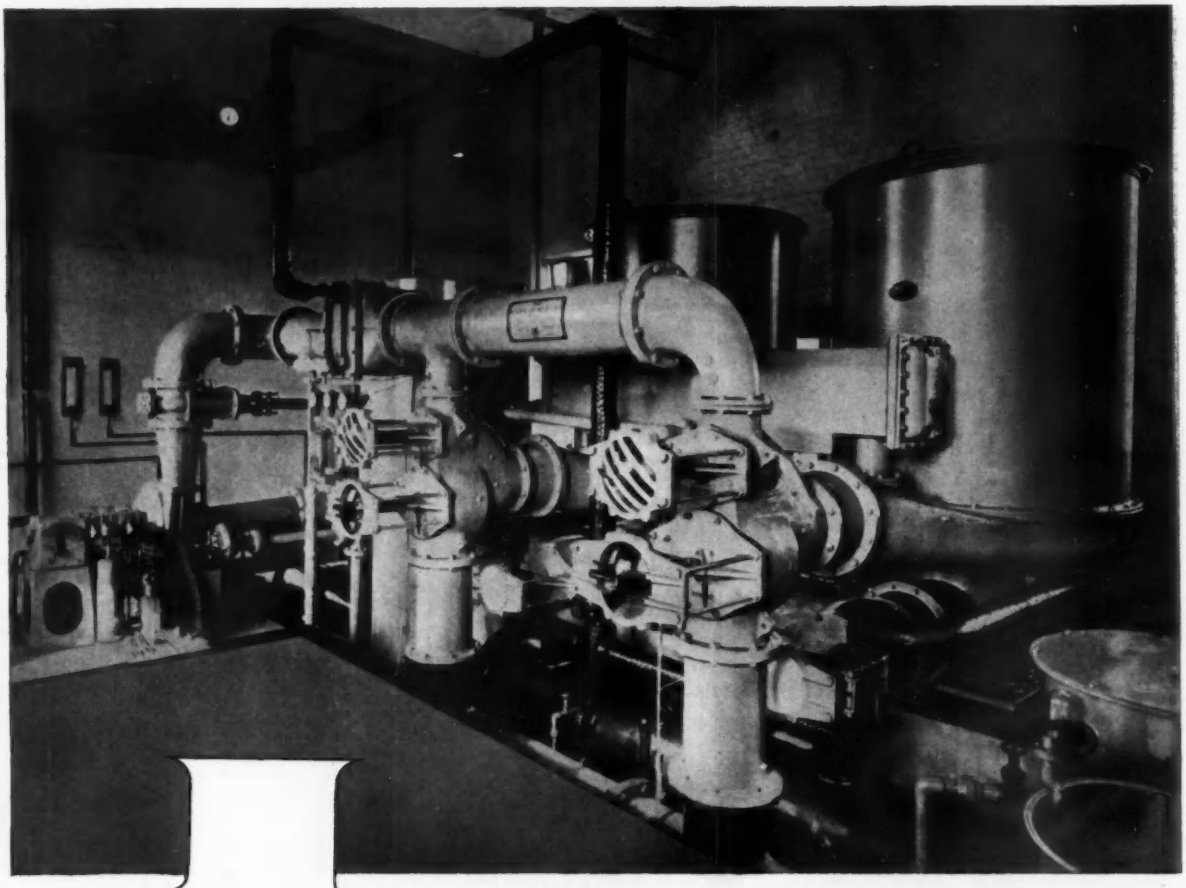
Condensing Plant
with auxiliary water-cooling system, South Western Gas Board

by Simon-Carves Ltd

SIMON-CARVES GROUP

STOCKPORT ENGLAND

OVERSEAS COMPANIES
Simon-Carves (Africa) (Pty) Ltd : Johannesburg
Simon-Carves (Australia) Pty Ltd : Sydney



100% recovery of Benzole

HAS BEEN RECORDED

100% recovery of Benzole has been recorded in the Gas Industry where Sutcliffe Speakman plants of the type illustrated are already installed.

These recovery plants are the result of over twenty years' experience in the manufacture and industrial use of Active Carbon. Their capacities range from 250,000 cu. ft. per day. Entirely automatic and with few moving parts, they are compact, clean in operation, and economical to run. Their initial cost, too, compares favourably with that of other recovery systems. In every way they are the most profitable investments. We are always ready to draw up a complete balance sheet for Benzole recovery in any specific undertaking of the Gas Industry.

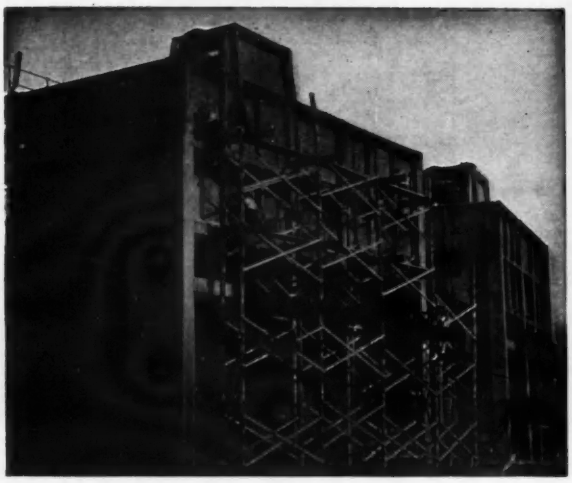
to cut Benzole wastage to a minimum, consult

SUTCLIFFE SPEAKMAN

SUTCLIFFE SPEAKMAN AND COMPANY LIMITED, Leigh, Lancashire

Telephone: Leigh 94. London Office: 2 Caxton Street, Westminster, S.W.1. Telephone: ABBEY 3085

Gunite



One of the reinforced concrete structures reconditioned with Gunite for the City of Carlisle Gas Undertaking.

Gunite—concrete applied by air pressure—has numerous applications where its great density and extreme adhesion have exceptional value.

For repairing reinforced concrete it has particular merit, as, due to the method of application, a uniform density and adherence is obtained whenever Gunite is applied.

For lining coal bunkers and steel chimneys it possesses great resistance to corrosion and protects steel-work from the abrasive action of coal or coke.

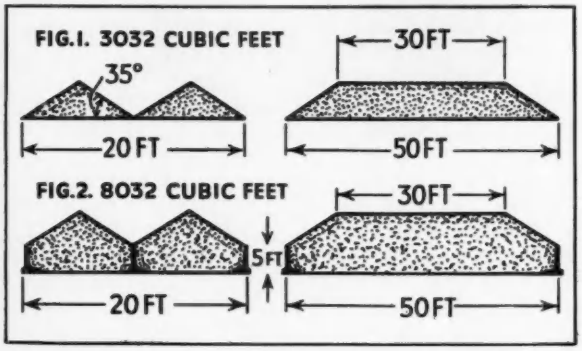
Handbook "GUNITE" sent on request

THE CONCRETE PROOFING CO., LTD.

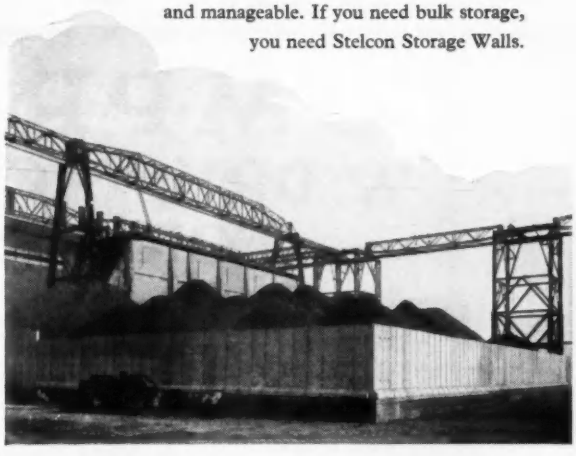
100, VICTORIA STREET, S.W.1

Telephone: Victoria 7877 & 6275

There's more in store for you... 160%



Stelcon Storage Walls provide increased capacity . . . *as much as 160%*, with the consequent saving in storage space. This constitutes but one of the many features of this unique and convenient storage system. Stelcon Storage Walls, available in 4 heights up to 12 feet, not only protect stocks from theft, "carpet-losses", mixing-in and other forms of wastage, but keep them neat, safe and manageable. If you need bulk storage, you need Stelcon Storage Walls.

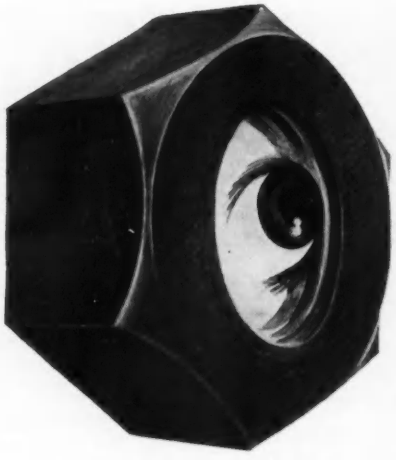


Stelcon STORAGE WALLS

THE SIMPLEST, SAFEST, AND SMARTEST STORAGE SYSTEM

Please write for illustrated technical booklet A25

STELCON (INDUSTRIAL FLOORS) LIMITED
Clifford's Inn, London, E.C.4. Tel: HOLborn 2916



see us about NUTS!

(and bolts too!)

Some people spend a lot of time looking high and low for suppliers who can be depended upon to turn up with just the right article of just the right quality and on the right date.

You won't go wrong, so far as nuts and bolts are concerned, if you let us in on your needs. And, by the way, if you're not receiving our "Monthly Stock List" please let us know — it's a handy way of keeping up with the supply position.

LITERATURE describing our products should be on every buyer's desk. Please write for information on sizes and prices.

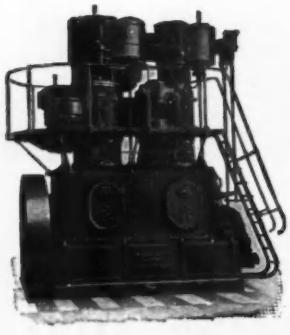
Black, bright, non-ferrous nuts and bolts, and high-tensile bolts, too, by:—

the LANARKSHIRE
BOLT & RIVET COMPANY LIMITED

Burnbank, Lanarkshire, Scotland. Tel.: Hamilton 1241

COMPRESSORS
& DRY VACUUM PUMPS
FOR AIR OR GAS.

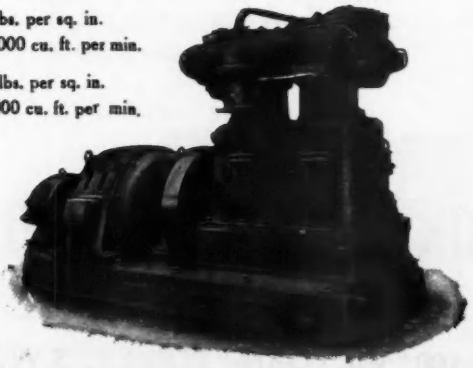
* * *



These double-acting cross-head type Compressors are provided with forced lubrication. They may be driven by any suitable power unit, as shown below, or by steam cylinders in tandem with the compressor cylinders making a self-contained unit, as shown on the left.

Single Stage. Pressures up to 40 lbs. per sq. in.
Capacities up to 10,000 cu. ft. per min.

Two Stage. Pressures up to 120 lbs. per sq. in.
Capacities up to 5,000 cu. ft. per min.



For particulars of these machines and for other types write (mentioning this journal) to:—

REAVELL & Co., LTD.,
Ranelagh Works, Ipswich.

Telegrams: "Reavell, Ipswich." Telephone Nos. 2124 & 2125 Ipswich.

THE VITAL FLAME OF PROGRESS

Photograph by the courtesy of the Gas Council.

FREDERICK WINSOR 1763-1830

Born in Brunswick, he came to England about 1803 and became the "business impressario" of the infant gas industry.

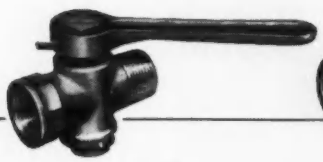
He is best remembered for his first public gas lighting display at Carlton House and along Pall Mall.

For many years Staveley pipes have been recognised the world over as of the highest attainable standard for Gas mains.

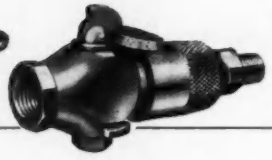
SAND & METAL
SPUN PIPES
FOR GAS

THE STAVELEY IRON & CHEMICAL CO. LTD. NR. CHESTERFIELD

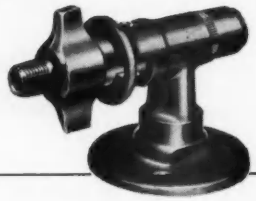
BRASSWORK



M & F Main Cock with Iron Key.

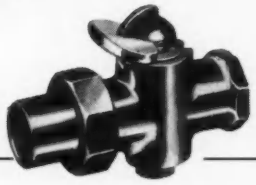


"Simflex" Drop Lever Cock with plug in Connector

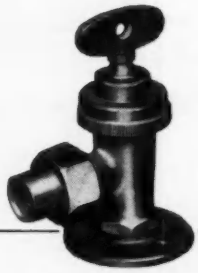


9044 SE Plug in Cock and Connector (Rubber Sleeve Joint)

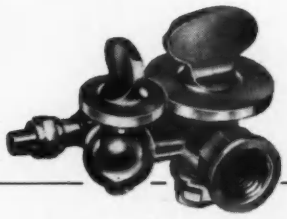
EXCLUSIVE



Union Cock with drop lever.



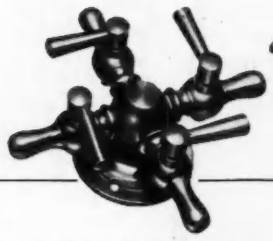
Gas Fire Cock with loose key, flanged for floor fixing.



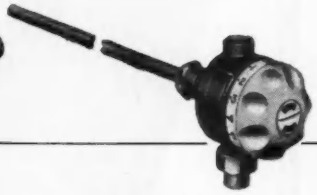
Main and Bye-pass Interlocking Cock, for use on large-scale Catering equipment.

QUALITY

Constant Pressure Governor spring loaded for horizontal or vertical use



4 Way Laboratory Bench Cock, for Laboratory use.



Cooker Thermostat White plastic head with figures marked in black.

QUANTITY

These illustrations are typical of the wide range of fittings manufactured in bulk for leading industries at home and overseas. They embody the highest standards of design, workmanship, material and finish.

We invite your enquiries.

William Sugg and Company Limited

(Incorporating COWPER PENFOLD & CO. LTD.)

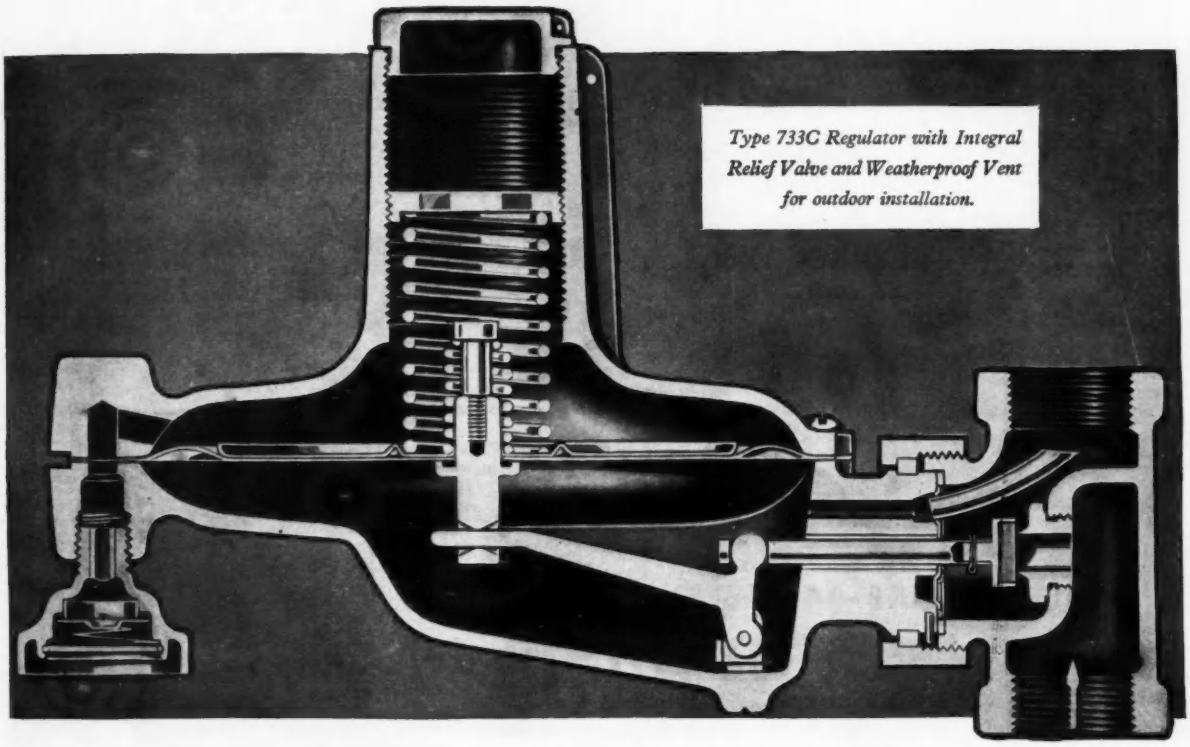
CERTIFIED PERFORMANCE

RANELAGH WORKS, CHAPTER STREET, LONDON, S.W.1 Tel: VICtoria 3211 (4 lines)

SUGG WESTMINSTER

FISHER SERIES 730

Gas Service Regulators



Type 733C Regulator with Integral Relief Valve and Weatherproof Vent for outdoor installation.

Series 730 Regulators, in sizes from $\frac{3}{4}$" to 2", are employed to reduce gas pressures (up to 150 p.s.i.) to inches of water column in the outlet piping. Constant reduced pressure without droop at varying loads is ensured by the pitot tube in the outlet connection. Regulators may be fitted with integral relief valve to relieve excessive pressure build-up.

Catalogue FG20-GB, describing the range of Fisher Pressure Regulators now made in England, is available on request.

FISHER GOVERNOR COMPANY LIMITED,

CENTURY WORKS, LEWISHAM, LONDON, S.E.13 TELEPHONE: TIDEWAY 3232

MONK

OF

WARRINGTON AND LONDON

are organised and equipped to carry out

CIVIL ENGINEERING · REINFORCED CONCRETE AND BUILDING CONSTRUCTION

connected with

THE GAS INDUSTRY

Entrust this important part of your expansion programme to this organisation which has been responsible for the construction of many major projects at home and overseas.

A. MONK & COMPANY LIMITED

Head Office : Padgate, Warrington.
Telephone : Warrington 2381.

London Office : 75, Victoria Street, S.W.1.
Telephone : ABBey 2651.

117/65.

THIS MACHINE—4 BOLTS IN CONCRETE

Fixed in 38 minutes

Conditions were ideal, and ample power was available for drilling the concrete, *but even so it is only by Rawlplug methods such astonishing fixing speeds are possible.* Rawlbolts are a *dry* fixing, they grip at once by expansion—no grouting in, no waiting for cement to dry.

Even where speed is unimportant, it is still simple business efficiency to keep fixing times and costs to a minimum. Write for details of Rawlbolts (diameters up to 1") and the full range of Rawlplug tools.

If you have a fixing problem, please write us. Our Technical Service Dept. will be delighted to advise you free of cost or obligation.

THE RAWLPLUG COMPANY LTD. RAWLPLUGS CROMWELL RD., LONDON, S.W.7

THE WORLD-WIDE FIXING DEVICES ORGANISATION

B468

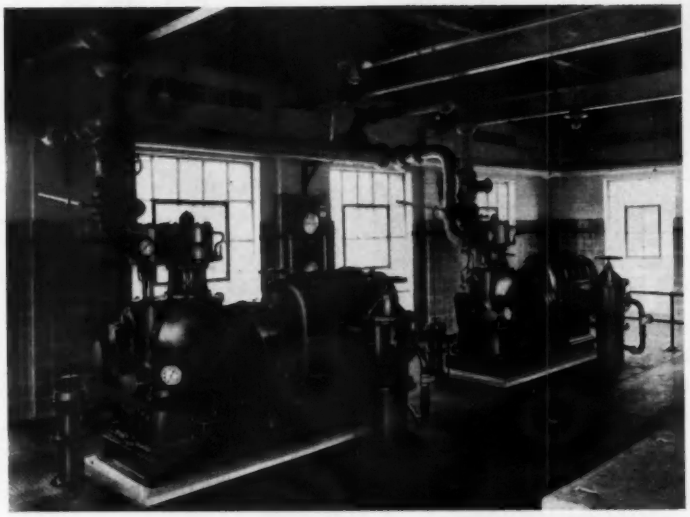
"EVERITE"
REGD. TRADE MARK
Asbestos-Cement
FLUE PIPES
& FITTINGS
EVERITE
EVERITE
EVERITE
TURNERS ASBESTOS CEMENT CO LTD
A MEMBER OF THE TURNER & NEWALL ORGANISATION
TRAFFORD PARK
MANCHESTER 17

F.2

SISSON STEAM ENGINES

FOR LONG PERIOD CONTINUOUS RUNNING

DESIGNED for driving EXHAUSTERS BOOSTERS COMPRESSORS ETC.



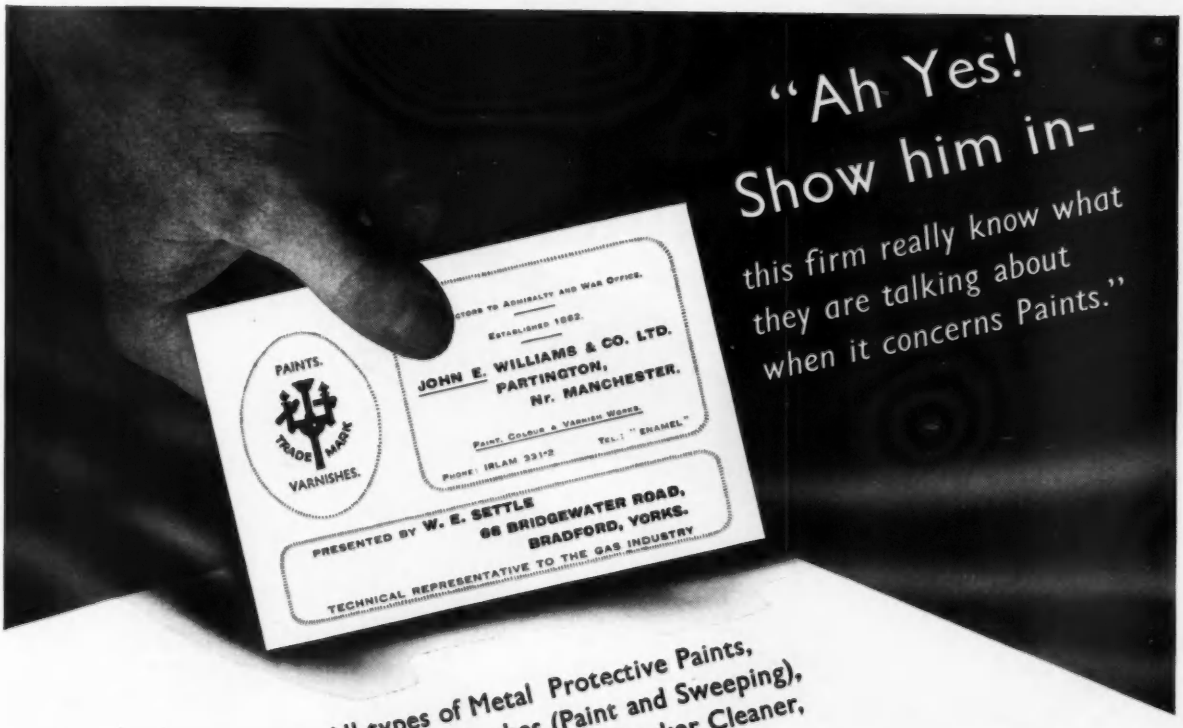
COMPACT STURDY and RELIABLE

SUITABLE for GAS GOVERNOR or AUTOMATIC CONTROL

Telegrams: SISSON

W. SISSON & CO., LTD.
GLOUCESTER, ENGLAND.

Telephone: 22295-6

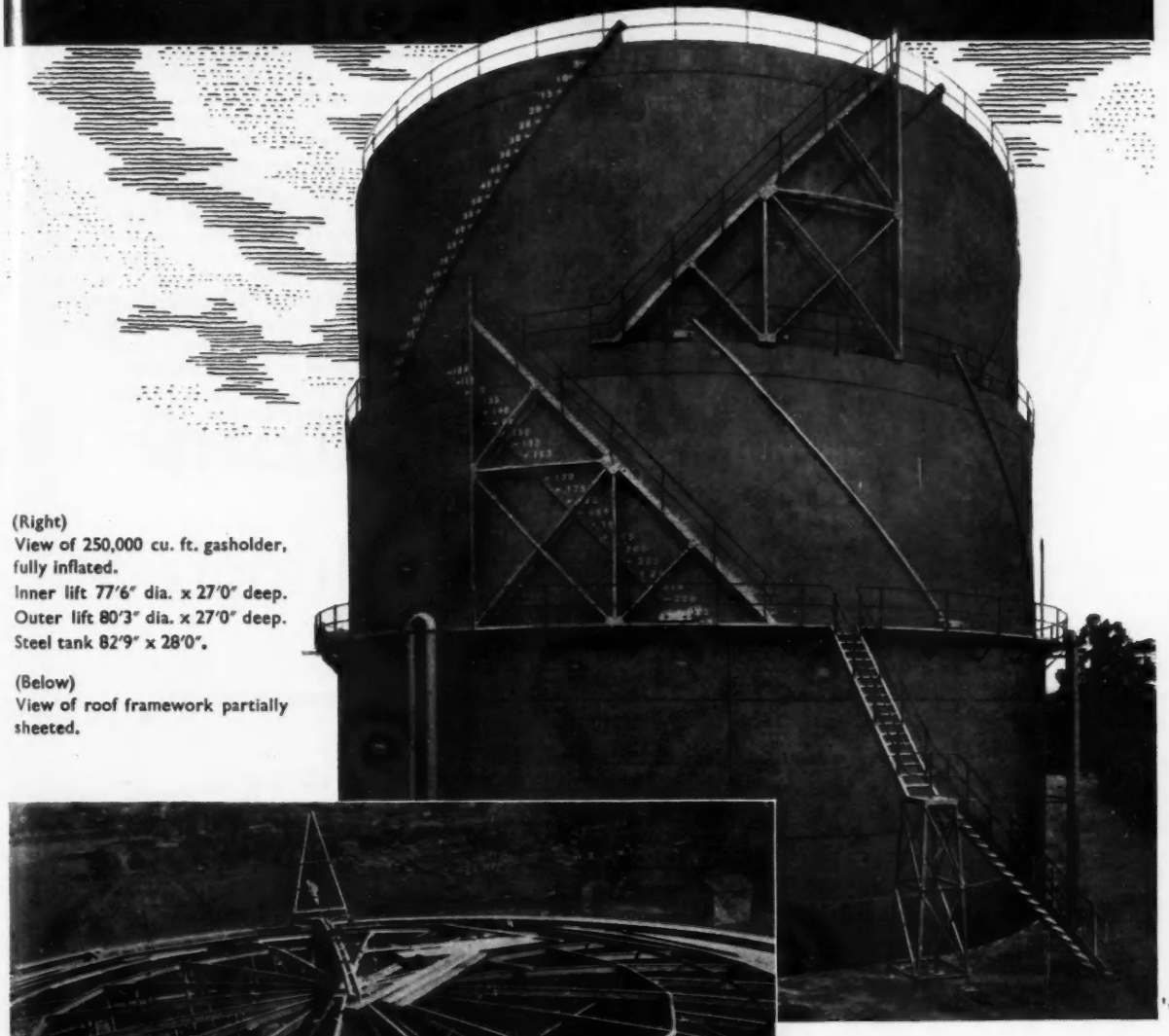


Over 100 years close association with the Gas Industry.

All types of Metal Protective Paints, Cements, Brushes (Paint and Sweeping), Wire Brushes, Gloves, Cooker Cleaner, Contractors Stores Items etc.

OXLEY

ALL-WELDED GASHOLDERS



(Right)
View of 250,000 cu. ft. gasholder, fully inflated.
Inner lift 77'6" dia. x 27'0" deep.
Outer lift 80'3" dia. x 27'0" deep.
Steel tank 82'9" x 28'0".

(Below)
View of roof framework partially sheeted.

Oxley specialise in the fabrication and erection of all-welded gasholders and can meet all your construction and repair problems.

OXLEY ENGINEERING CO. LTD., HUNSLET, LEEDS 10

Telephone: Leeds 32521
Telegrams: Oxbros, Leeds, 10

London Office: WINCHESTER HOUSE, OLD BROAD STREET, E.C.2.
Telephone: London Wall 3731. Telegrams: Asbengpro, Stock, London.
W.132

JOHN THOMPSON GROUP

Of the 18 Companies which form the *John Thompson Group*, eleven are engaged in the design and construction of plant for the generation of *steam;* the other seven Companies supply highly specialised plant, equipment, or components of such plant and equipment for one or another of the basic industries. The products of the *Group* include all types of steam generating units; much of the ancillary plant and equipment for such installations; storage and pressure vessels in mild steel and alloy steels; pickling, galvanising and acid recovery plant; annealing covers; steel chimneys; motor and industrial pressings; metal windows; industrial flooring; mild steel gas mains and piping; iron castings; instruments for measuring liquids and gases, etc. The activities of this *Group of Companies* are spread over a total area of ground exceeding 100 acres which is occupied by factories and offices situated in Wolverhampton, Bilston, Dudley, Leeds and Glasgow, and the *Group* has Companies overseas in Australia, South Africa, India, Brazil and in New York, U.S.A.

Primarily, The John Thompson Conveyor Company manufactures coal and ash handling plant for boiler house installations, but the Company also manufactures a variety of special purpose Conveyors and a number of portable Conveyors.

To bring coal to the boiler, the Company designs and constructs Coal Conveyors ranging in capacity from 1 ton up to 45 tons per hour. The removal of the residual ash is provided for by Ash Conveyors of the submerged-belt-type, with belts varying from 24″ — 48″ and in Conveyor lengths up to 250 feet.

A full description of this Company's products and services is given in illustrated literature which will be sent on request to interested firms and engineers.

JOHN THOMPSON CONVEYOR COMPANY

JOHN THOMPSON CONVEYOR COMPANY WOLVERHAMPTON

Gas and coke oven executives already use 549 Chasesides to speed up "handling"—and this hydraulic-control model is speedier still. Please write for details to-day to

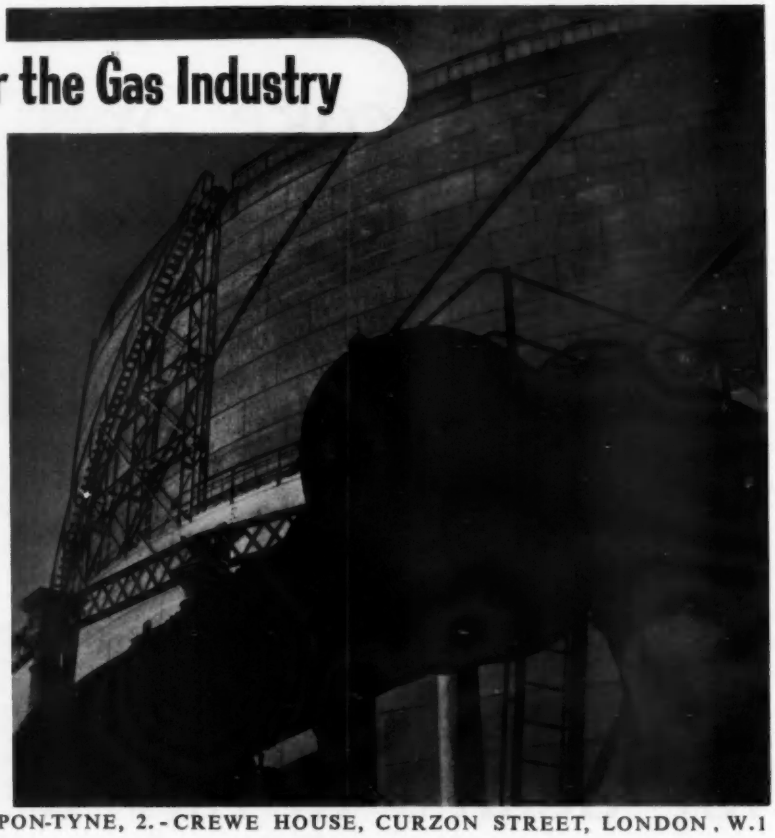
Chaseside Engineering Co. Ltd., Hertford, Herts.
(Telephone: Hertford 3113)

Chaseside Service Control Stations at
Church St., Ware, Herts. 'Phone: Ware 720/1 and
Failsworth, Manchester. 'Phone: Failsworth 3721
Manufacturers of Shovels, Dumpers, Shunting Tractors

TAS/CD 399

B

Photograph by courtesy of the Gas Council



Aluminium Paints for the Gas Industry

"LUMEROS X" High Heat Resisting Paint.
Represents the latest and greatest advances in the protection of iron and steel subject to very high temperatures. "LUMEROS X" gives adequate protection at temperatures up to 600°C. Suitable for indoor and outdoor use. Good water resistance. No undercoat required. Available in Aluminium or Black.

"METTAL" Aluminium Paint.
A general purpose paint of the highest quality and durability and possessing great brilliance. For indoor and outdoor use. Whilst not specifically designed as a heat resisting coating "METTAL" will stand temperatures around 212°F (100°C).

"METTAL" (Thermal).
Specifically designed for indoor and outdoor use on metal surfaces up to 350° F (177°C).

BRITISH PAINTS LIMITED

PORTLAND ROAD, NEWCASTLE-UPON-TYNE, 2.-CREWE HOUSE, CURZON STREET, LONDON, W.1

Steel Bunkers and Chimneys at Power Stations and Works are usually lined with GUNITE which withstands abrasion and chemical attack without adding seriously to the weight.

GUNITE

puts longer life into Bunkers

The Gunite process, developed by the Cementation Co., Ltd., has a successful record of over 25 years as a facing for both new and dilapidated structures.

It is water, weather, and fireproof, and has great mechanical strength and hardness. Its adhesion to concrete is greater than the strength of the concrete itself.

Write for your copy of the Gunite booklet which illustrates and describes its characteristics and applications for factories, chimneys, wharves, water towers, reservoirs, sea walls, silos, etc.

The CEMENTATION COMPANY LIMITED

BENTLEY WORKS, DONCASTER
Tel. 54177-8-9

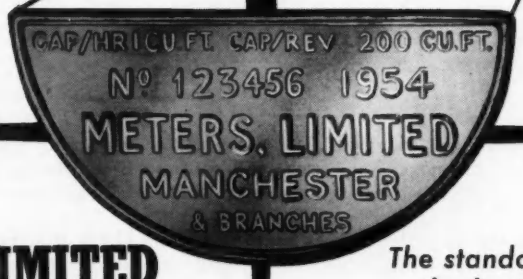
London office: 39, Victoria Street, S.W.1
Tel. ABBey 5726

300 YEARS IN THE MAKING!

Don't be deceived by the glossy paint and the shining brass. This meter is not a product of yesterday or even yesteryear.

It had its beginnings from the moment the three individual operating Companies faced and solved their first technical problems one hundred years ago.

Indeed, it represents 300 years of combined experience, and there you have the measure of the skill and knowledge which lies behind the name **Meters Limited.** Little wonder then that these products are trusted and accepted by the Gas Industry.



METERS LIMITED

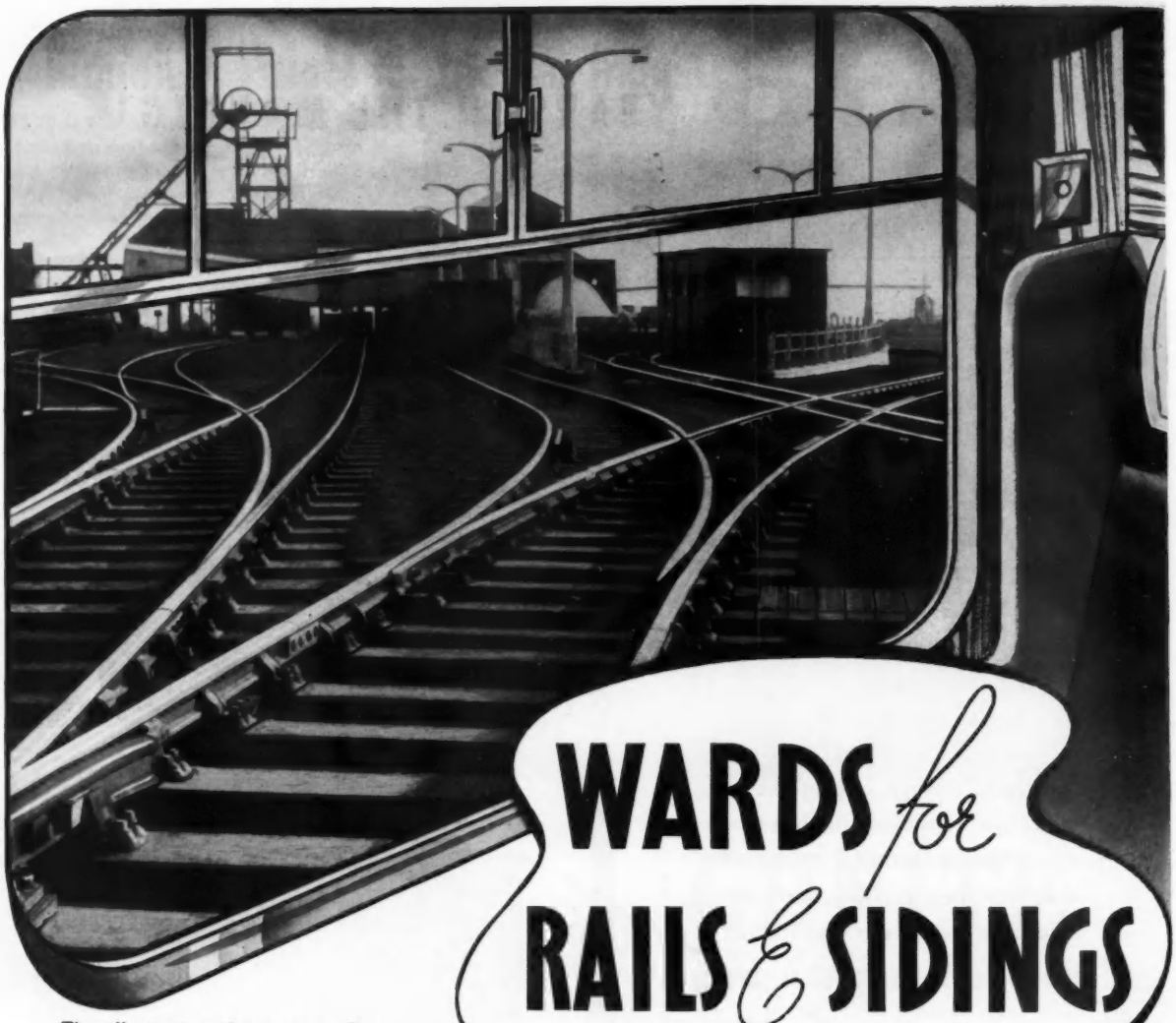
Head Office:

51 KING STREET
MANCHESTER, 2

Tel: Blackfriars 0387

The standard by which the best is judged

Depots:
MIDDLESBROUGH, Newport Road. Tel: 2362.
OLDHAM, Globe Works. Tel: MAin 3815-7
OLDHAM, Atlas Meter Works. Tel: MAin 2239
MANCHESTER, Nelson Meter Works. Tel: COLlyhurst 2289-90.
NOTTINGHAM, Radford Road. Tel: 75202.
WOLVERHAMPTON, 49, Ablow Street. Tel: 23189.
WATFORD, Riverside Road. Tel: 9548.
BRISTOL, Bedminster. Tel: 63127.
LONDON, Morden Road. Tel: Mitcham 2121.



WARDS for RAILS & SIDINGS

The illustration shows part of a large siding laid by Wards at the Primrose Hill colliery near Castleford, Yorks.

Like pages in a catalogue, Ward-built sidings glide by the carriage windows of main line and local trains all over the country. At steelworks and collieries, at refineries and breweries, at quarries and dockyards—here, there and everywhere—industry links its output to British Railways over sidings planned and laid by Wards' skilled engineers.
From the simplest run-in to the largest of industrial installations there is a technical excellence about a Ward-built siding which provides smooth running throughout its span of service.

The Railway Siding Consultants and Contractors

THOS. W. WARD LTD
ALBION WORKS · SHEFFIELD
TELEPHONE 26311 (22 LINES) · TELEGRAMS FORWARD SHEFFIELD
LONDON OFFICE: BRETTENHAM HOUSE · LANCASTER PLACE · STRAND · W.C.2

SC/30

MASTERTHERM

A new design for FLAMELESS HEAT!

MASTERTHERM

Industrial Burner

adaptable for a large range of industrial uses.

Radiant Heating Ltd., who have been making flameless combustion appliances for over 30 years, introduce the "Mastertherm" a flameless radiant gas burner, which does not require the aid of air under pressure to bring about surface combustion. This feature naturally opens up a wide field of development. The "Mastertherm" will operate in any position and is capable of a surface temperature of up to 850°C. using towns' gas at 16/10ths water gauge, or liquid petroleum gases.

MASTERTHERM

Overhead Radiant Heater

Provides a continuous downward flow of healthy radiant heat. Can be tilted from 30° to 75°. Available in two sizes for wall or suspension fitting, it has a consumption of 10.000 or 20,000 B.T.U's per hour at 16/10th Water Gauge Pressure.

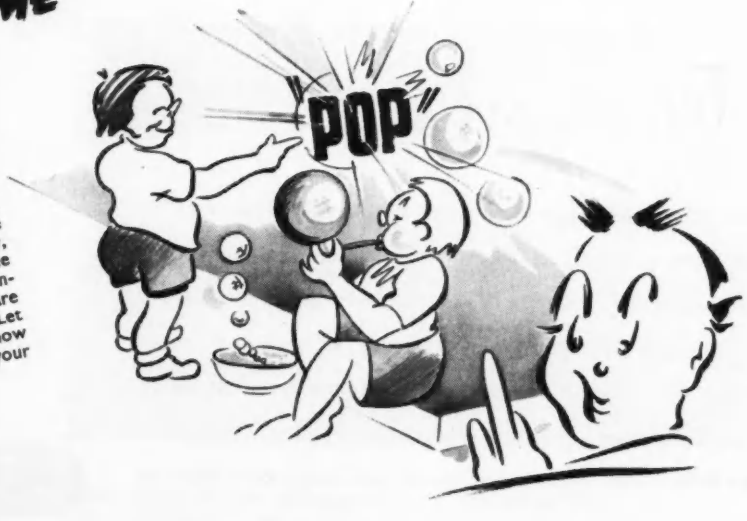
50 YEARS CONTINUOUS SERVICE TO THE GAS INDUSTRY

RADIANT HEATING LTD

RADIANT WORKS · BARNSBURY PARK · LONDON N.1. *Tel· North 1677 (3 lines)*

AH! THAT REMINDS ME

It's good to see the ease with which children play—for instance when bursting a bubble. The "Pop" system of riveting can be operated with the same ease, yet it enables a first class job of riveting to be done easily, speedily, securely and from one side of the surface only, by one operator, in one operation—awkward corners included. There are countless applications. Let our technicians advise how the system can help your problems.



ONE OPERATOR OPERATION

'Pop' is a Registered Trade Mark of the manufacturers

Geo. TUCKER EYELET Co. Ltd.

WALSALL ROAD · BIRMINGHAM 22

CONSULTANTS AND TOOL MANUFACTURERS: **AIRCRAFT MATERIALS LTD.,** MIDLAND ROAD ,LONDON ,N.W.1

When a Teddington instrument

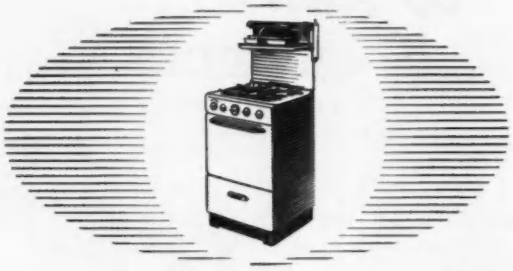
. is in control....

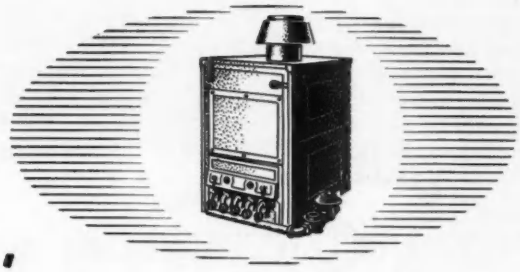
. cookers cook....

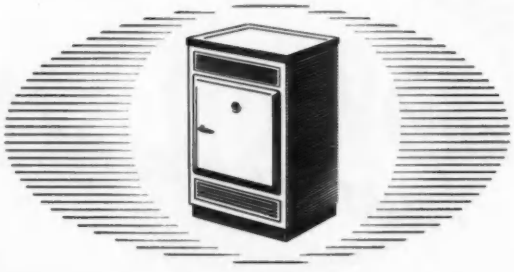
. heaters heat....

. and fridges freeze....

. at exactly the right temperature!







Modern Teddington gas controls make life easier for a lot of people—from appliance manufacturers to housewives and boilermen. For a Teddington thermostat keeps a rigid, unwavering eye on the gas during an appliance's entire useful life. That's why more and more manufacturers specify Teddington controls. Deliveries are quick. Spares are plentiful. And bulk order prices are tempting. May we quote you one?

Teddington

THE BRITISH THERMOSTAT COMPANY LIMITED

The largest Manufacturers of automatic controls in Europe

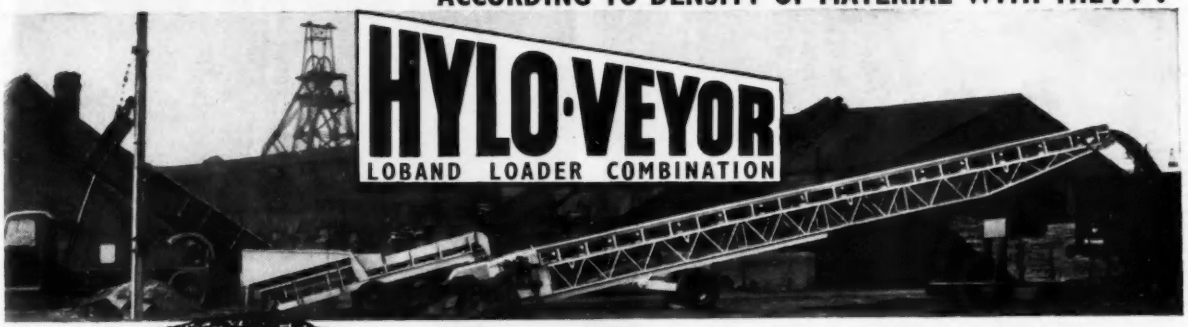
Sunbury-on-Thames, Middlesex. Telephone: Sunbury-on-Thames, 456

JOHNSON

MECHANICAL HANDLING PLANT

UP TO **200 TONS PER HR.**

ACCORDING TO DENSITY OF MATERIAL WITH THE . . .



NO TROUBLESOME CHAINS OR SPROCKETS

VARIABLE ELEVATION THROUGH WIDE RANGE
STOCKPILING UP TO HEIGHTS OF 30FT.
WITHOUT SECOND HANDLING

Illustration shows a 48 ft. centres × 24 in. belt HYLO-VEYOR LOBAND-LOADER COMBINATION transferring washed slack direct from tipping truck to railway waggon at the rate of 150 T.P.H. FIXED CONVEYORS can also be supplied. Power units can be electric motor, petrol or Diesel engine. Please apply for our new General Conveyor Folder. CF/44

Our Mechanical Handling Consultant will be pleased to help you.

WE MANUFACTURE PORTABLE CONVEYORS from 20FT. to 62FT. CENTRES GIVING DISCHARGE HEIGHTS UP TO 30FT.

'L.A.' type CONVEYOR

WITH 25ft CENTRES and DISCHARGE HEIGHT VARIABLE FROM 5'10" to 15'.

Manufactured in 16" and 24" belt widths with capacities up to 100 T.P.H. according to density of material. Drive by Electric Motor, Petrol or Diesel engine. Direct through shaft, flexible coupling and gear box to bottom drum. All chains and sprockets eliminated. Twin hydraulic jacks give easy control of discharge height throughout its range.

25 ft. × 24 in. 'LA' Type engine driven, coal stacking at Queen's Quay, Belfast.

NEW LIGHT-WEIGHT DESIGN. EASILY MOVED BY ONE MAN.

We also manufacture a light, portable (Type L) conveyor with a fixed discharge point. Both machines can be towed to and from site. *MAY WE SEND YOU our latest descriptive Folder (SF44) on Johnson Standardised Belt Conveyors.*

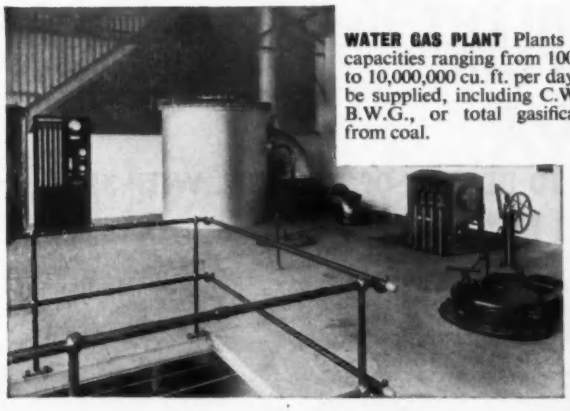
C.H. JOHNSON (Machinery) LTD., CF/44 **ADSWOOD, STOCKPORT, Ches.**

PHONE: STO 2642/5 GRAMS: 'Machinery' Stockport Also at LONDON (Prospect 7671) GLASGOW (Kilmacolm 558).

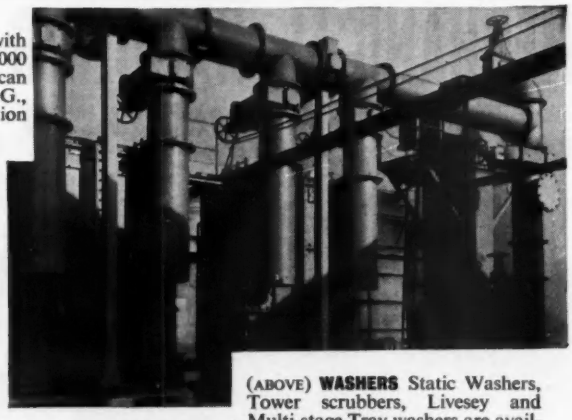
716

Old in experience . . . young in ideas 1810-1953

The Balfour Organisation can offer to the Gas Industry a source for the planning, manufacture and installation of a complete range of equipment. Production, purification, the recovery of by-products — whatever the problem, a wealth of past experience and present ability is at your service.



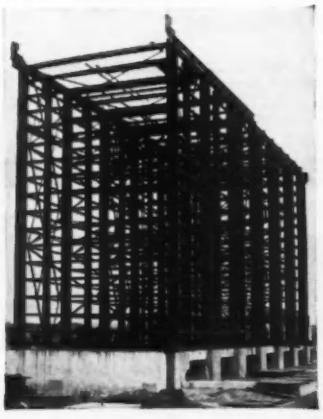
WATER GAS PLANT Plants with capacities ranging from 100,000 to 10,000,000 cu. ft. per day can be supplied, including C.W.G., B.W.G., or total gasification from coal.



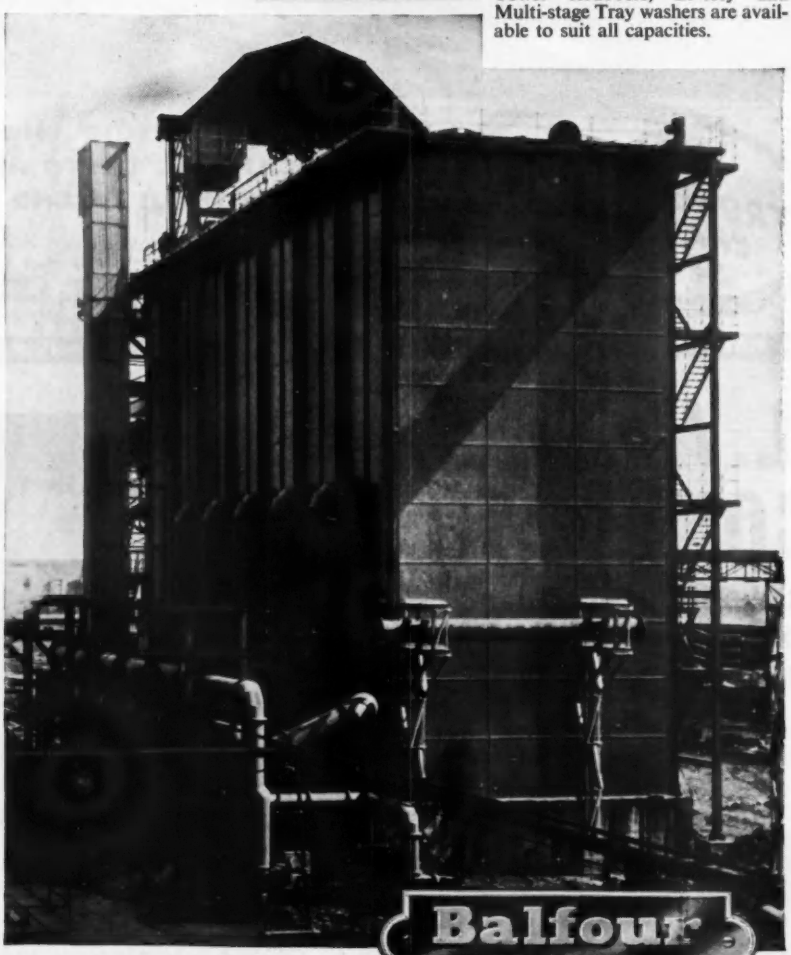
(ABOVE) **WASHERS** Static Washers, Tower scrubbers, Livesey and Multi-stage Tray washers are available to suit all capacities.

BALFOUR-LECOCQ TOWER BOX PURIFIERS

(BELOW) An early stage of erection of the plant at the Southall Works of the North Thames Gas Board. Capacity 7,500,000 cubic feet per day. (*Photograph by courtesy of the North Thames Gas Board*).



(RIGHT) The first installation put into operation at the Car House Works, Rotherham at the East Midlands Gas Board. Capacity 10,000,000 cubic feet of gas per day. To be extended to 20,000,000 cubic feet per day. (*Photograph by courtesy of the East Midlands Gas Board*).



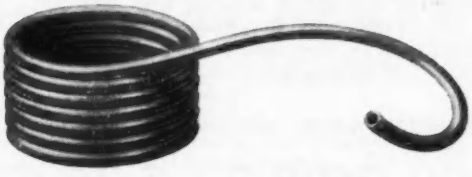
ALSO: Gasholders (*Spiral or Frame Guided, Rivetted or Welded*). Purifiers (*Cast Iron or Mild Steel*). Condensers (*Vertical Multipass-Horizontal Tubed and Supervertical*). Electro-Detarrers. Complete Gas treatment Streams. By-product Plant etc.

HENRY BALFOUR & COMPANY LIMITED

Artillery House, Westminster, London, and Durie Foundry, Leven, Fife

MEMBER OF THE BALFOUR GROUP OF COMPANIES

We Lead in LEAD



LEAD SHEET AND PIPE to B.S. Specifications is manufactured by us under our trade name "Cornwall Brand."

B.S.S. 602 Lead water, waste and Gas Pipe, ribbed for easy indentification.

B.S.S. 1178 Sheet Lead for Roofing, Flashings, Damp Courses, etc.

• • •

Lead Traps and Bends.

CORNWALL BRAND
SOLDERS
B.S.S. 219, etc.

MANUFACTURERS of Extruded Rods in Machining Quality Brass, Forging and Hot Stamping Brass, Naval Brass, High Tensile Brass. B.S. and overseas Specifications.
A.I.D APPROVED

• • •

Buyers of Brass Scrap and Swarf to B.S.S. 218 and 249.

• • •

BRASS

HOLMAN, MICHELL & CO. LTD.
CORNWALL WORKS, ST. HELENS, LANCS.
Telephone: St. Helens 4201/5. Grams: "CORNWALL," St. Helens.
Midlands Office: 131, Kingsbury Road, Birmingham, 24. Telephone: Erdington 2293

Lower Lift Protection

For the anti-corrosive treatment of gasholder lower lifts, "Humidine" non-setting paint is now specified almost universally.

There should be no element of doubt where the use of "Humidine" is being considered. Its protective qualities have been adequately proved in very many gas undertakings.

Nevertheless, there may be gas engineers who have not yet had opportunity to assess the qualities of "Humidine". If so, they should write at once for a specification and information.

NON-POISONOUS NON-INFLAMMABLE

'HUMIDINE'

ANTI-CORROSIVE NON-SETTING PAINT

Manufactured by (ASPINALLS) (PAINTS) LTD., CARLETON, SKIPTON, YORKS.

dm AL:7

A PRACTICAL APPLICATION OF

JEAVONS

H.P. DISTRICT GOVERNORS

Photograph shows a duplicate set of 8" "Jeavons-Emco" High Pressure District Governors in brick built house.

Volumetric Governors and Holder Cut-off Valves also supplied.

★ DUPLICATE OR SINGLE SETS WITH BYE PASS. SUPPLIED IN SIZES 2", TO 12"—HIGH OR LOW PRESSURE.

JEAVONS ENGINEERING CO · TIPTON · STAFFS

'PHONE: TIPTON 2161 (5 Lines). PROPS: E. E. JEAVONS & CO. LTD 'GRAMS: PIPELINES · TIPTON

'FOSALSIL'
Insulating Bricks
for the gas industry

"M.P. 21" Insulating Refactory Bricks, with a maximum temperature limit of 2100°F., possess thermal insulating properties up to four times as great as firebricks. Thus, when used as a direct lining in furnaces or kilns, or immediately behind the refactory lining of gas-producing plant, they pave the way for the more efficient insulators "Fosalsil" Solid Grade or Economite. The comprehensive range of "Fosalsil" Insulating Bricks is the means of reconciling thermally efficient structures with economic wall thicknesses at all temperatures.

* "*M.P. 21*" *formerly known as MEDIAL.*

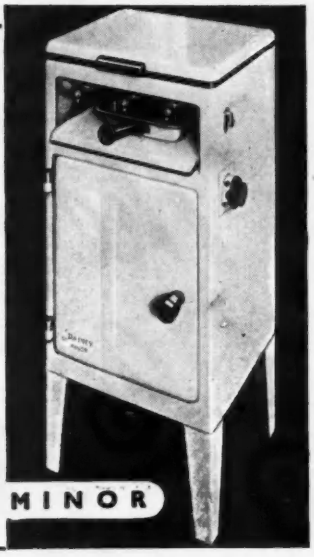
MOLER PRODUCTS LTD.
HYTHE WORKS · COLCHESTER
TEL.: COLchester 3191 (3 lines). GRAMS : FURMOL, Colchester.

BIG Capacity for LITTLE Kitchens

Especially suited to the kitchens of flats and small houses, this highly efficient cooker provides utmost cooking capacity in the least possible space. Cast iron construction ensures strength and durability and reduces maintenance costs to a minimum, thus making the Dainty Minor particularly suitable for simple hire or hire purchase.

Approved and adopted by leading gas boards

The **Dainty** MINOR



R. RUSSELL & SONS, LTD., DERBY
Agents for Scotland and Northern Ireland:
JAMES R. THOMSON & CO. LTD., 41, YORK STREET, GLASGOW, C.2

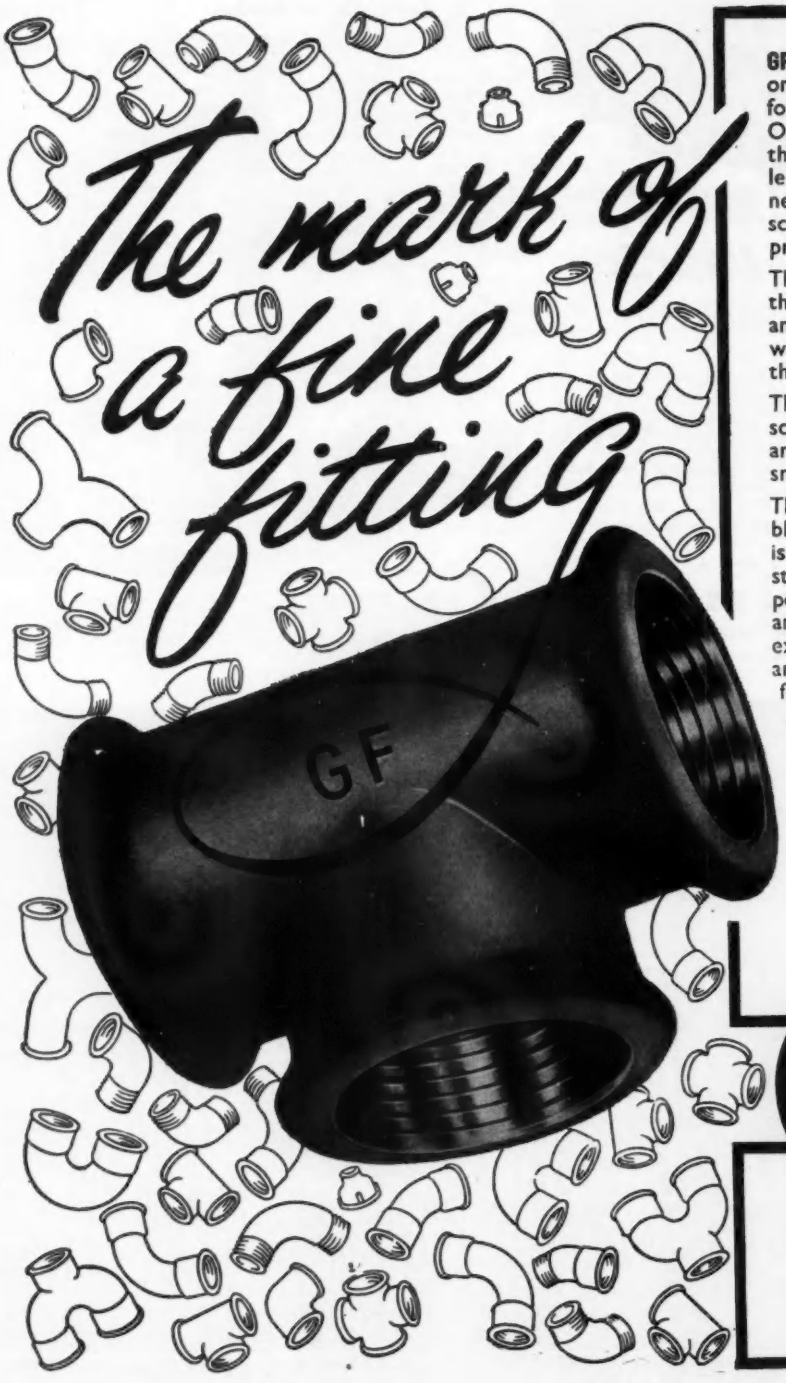
ESCOL

THE SYMBOL OF SERVICE AND QUALITY

VITREOUS ENAMELS
VITREOUS ENAMELLING
REFRACTORY COATINGS
ON METAL

STEWART & GRAY LTD.
PAISLEY WORKS · SWAINS ROAD · TOOTING JUNCTION · S.W.17.
Telephone: MITCHAM 1634 (5 LINES)
Telegrams: ESCOL · TOOT · LONDON.

The mark of a fine fitting



GF Fittings are made in one grade only, suitable for Steam, Water, Gas, Oil or Air service, and their incomparable excellence is the result of nearly a hundred years of scientific research and practical experience.

They are beaded to give the maximum strength and to prevent stretching when used with taper-thread Tubes or fittings.

They are non-porous, are screwed in dead alignment and are of clean finish and smooth bore.

The entire absence of blowholes and sandholes is due to the scientific study given to the composition of the metal, the annealing, and the minute examination at the works, and absolute immunity from casting defects is ensured by an individual test of 360 lb. per sq. in. on each and every fitting sent out.

Insist on the GF brand mark.

DISTRIBUTORS

LE BAS TUBE COMPANY LIMITED

City Wall House, 129, Finsbury Pavement, London, E.C.2

Warehouses : London, Manchester, Glasgow, Belfast.

Made at Britannia Works, Bedford

INDEX TO 'JOURNAL' ADVERTISERS

A — PAGE

A.C.E. Machinery, Ltd. ... ...
Abbott, Birks & Co., Ltd. ... ...
Acme Wringers, Ltd. ... ...
Acrogen Co., Ltd. ... ...
Acrograph Co., Ltd. ... ...
Adder & Mackay, Ltd. ... ...
Allen, John & Sons (Oxford) Ltd. 134
Anal, Ltd. 192
Ascot Gas Water Heaters, Ltd. ... ...
Ascot Gas Water Heaters, Ltd. (F.A. Neat) ...
Ashmore, Benson, Pease & Co. ... ...
Ashworth, Thos., & Co., Ltd. ... ...
Aspinall's (Paints), Ltd. 158
Associated Lead Manufacturers, Ltd. ... ...
Associated Lead Manufacturers, Ltd. (Rustodian)
Atlas Preservative Co., Ltd. ... ...
Audley Engineering Co., Ltd. ... ...
Autocontrol Boilers, Ltd. ... ...
Automatic Telephone & Electric Co., Ltd. ...
Automotive Products, Ltd. ... ...
Averill, C. R., Ltd. ... ...

B

Bale & Church, Ltd. 193
Balfour, Henry, & Co., Ltd. 156
Begwaco Meters, Ltd. ... ...
Bell's Asbestos & Engineering, Ltd. ... ...
Benham & Sons, Ltd. ... ...
Blakeley Firth, Sons & Co., Ltd. ... ...
Booth, John, & Sons (Bolton), Ltd. ... ...
Bratt Colbran, Ltd. ... ...
Bray, George, & Co., Ltd. 196
Bray, W. E., & Co., Ltd. ... ...
British Flint & Cerium Manufacturers, Ltd. ...
British Gas Purifying Materials Co. 194
British Oxygen Co., Ltd. ... Supp. btwn. pp 172, 173
British Paints, Ltd. 150
British Rototherm Co., Ltd. ... ...
British Thermostat Co., Ltd. 154
British Thomson Houston, Ltd. ... ...
British Vacuum Cleaner & Engineering Co., Ltd.
Broadbent, Thomas, & Sons, Ltd. ... ...
Brockhouse Heater Co., Ltd. ... ...
Broom & Wade, Ltd. ... ...
Brown, J., & Co., Ltd. ... ...
Bugden, Thos., & Co. ... ...
Bunn & Johnson, Ltd. ... ...

C

Cambridge Instrument Co., Ltd. ... ...
Cannon (G.A.), Ltd. ... ...
Cementation Co., Ltd. 150
Chamberlain Industries, Ltd. ... ...
Chaseside Engineering Co., Ltd. 149
Chemical Engineering Wiltons, Ltd. ... ...
Chemical & Insulating Co., Ltd. ... ...
Cinema-Television, Ltd. ... ...
Clapham Bros., Ltd. ... ...
Clayton, Son & Co., Ltd. ... ...
Clifford Engineering Co., Ltd. ... ...
Cochrane (Middlesbro') Foundry, Ltd. ... ...
Cohen, George, Sons & Co., Ltd. ... ...
Concrete Proofing Co., Ltd. 139
Consolidated Pneumatic Tool Co., Ltd. ... ...
Cort, Robert, & Son, Ltd. ... ...
Cox & Danks, Ltd. ... ...
Crane, Ltd. 192
Crone & Taylor, Ltd. ... ...
Crosby & Co. Ltd. ... ...
Crossley Bros. ... ...
Curtis, A. L., & Co. ... ...
Cutler, Samuel, & Sons, Ltd. ... ...

D

Davey, Paxman & Co., Ltd. ... ...
De la Rue, Thomas, & Co., Ltd. (Gas Group) ...
Dempster, R. & J., Ltd. ... ...
Dempster, Robert, & Sons, Ltd. ... ...
Derbyshire Silica Firebrick Co., Ltd. ... ...
Diaphragm & General Leather Co., Ltd. ...
Dick, R. & J., Ltd. ... ...
Donkin (The Bryan) Co., Ltd. ... ... Cover II
Douglas, Robert M., (Contractors), Ltd. ...
Douglas, William, & Sons, Ltd. 192
Drakes, Ltd. ... ...
Dresser Manufactures (England), Ltd. ... ...
Drew, H. B., Ltd. ... ...
Dunlop & Ranken, Ltd. ... ...
Dunlop Rubber Co., Ltd. (Gen. Rubber Goods Division) ... ...

E

E.B. Refractory Cement Co., Ltd. ... ...
Edgar, William, & Son, Ltd. ... ...
Electroflo Meters Co., Ltd ... ...
Electrolux, Ltd. ... ...
Elliott Bros. (London), Ltd. 143
Ether, Ltd. ... ...
Eversheds & Vignoles, Ltd. ... ...
Ewart Chainbelt Co., Ltd. ... ...
Expanded Metal Co., Ltd. ... ...

F

Flavel, S., & Co., Ltd. 186
Fluxite, Ltd. ... ...
Fowler, John, & Co. (Leeds), Ltd. ... ...
Franki Compressed Pile Co., Ltd. ... ...
Franklin Furnace Co., Ltd. ... ...

PAGE

Fry's Metal Foundries, Ltd. ... ...
Fyffe & Co., Ltd. ... ...

G

Gas Chambers & Coke Ovens, Ltd. 162
Gas Purification & Chemical, Ltd. 193
General Descaling Co., Ltd. ... ...
General Electric Co., Ltd. ... ...
General Gas Appliances, Ltd. ... ...
Gibbons Bros., Ltd. ... ...
Gibson, John, & Son, Ltd.... ... ...
Glover, George, & Co., Ltd. 133
Glover, Thomas, & Co., Ltd. 164
Goodall Clayton & Co., Ltd. ... ...
Goodyear Mechanical Goods 184
Grant & West, Ltd. ... ...
Graphite Products, Ltd. ... ...
Green & Boulding, Ltd. ... ...
Gunite Construction Co., Ltd. ... ...

H

Hattersley & Davidson ... ...
Hamilton, A. H., & Co., Ltd. ... ...
Hardman & Holden, Ltd. ... ...
Harris & Pearson, Ltd. ... ...
Harrisons (London), Ltd. ... ...
Harvey, G. A., & Co. (London), Ltd. ... ...
Hick Hargreaves & Co., Ltd. ... ...
Hilmor, Ltd. ... ...
Hills (West Bromwich), Ltd. ... ...
Holman. Michell & Co., Ltd. 157
Holmes, W. C., & Co., Ltd. 195
Hopkinsons, Ltd. ... ...
Honeywell-Brown, Ltd. ... ...
Horseley Bridge & Thomas Piggott, Ltd. ...
Horstmann Gear Co., Ltd. ... ...
Howden, James, & Co., Ltd. ... ...
Humphreys & Glasgow, Ltd. ... ... Cover I

I

Ideal Boilers & Radiators, Ltd. ... ...
I.C.I., Ltd. (Metals Division) ... ...
Inertol Co. Ltd. ... ...
Ingham, John, & Sons, Ltd. ... ...

J

Jeavons, E. E., & Co., Ltd. ... ...
Jeavons Engineering Co. 158
Jenkins, W. J., & Co., Ltd. ... ...
Johnson, C. H. (Machinery), Ltd. 155

K

Keay, E. C. & J., Ltd. ... ...
Keith Blackman, Ltd. 196
Kent, Geo. Ltd., ...
Kings Patent Agency, Ltd. 194
King, Walter, Ltd. 193, 194
Kirk & Co. (Tubes), Ltd. 134
Kirkham Hulett & Chandler, Ltd. ... ...

L

LaFarge Aluminous Cement Co., Ltd. ... ...
Laidlaw, R., & Son (Edin.), Ltd. ... ...
Lamont, James H., & Co., Ltd. ... ...
Lanarkshire Bolt & Rivet Co., Ltd. 140
Lancashire Dynamo & Crypto, Ltd. ... ...
Le Bas Tube Co., Ltd. 160
Lionweld, Ltd. ... ...
Lind, Peter, Ltd. ... ...

M

Magnetic Valve Co., Ltd. ... ...
Main, R. & A., Ltd. 188, 189
Main Refrigeration Ltd. 181
Marco Conveyor & Engineering Co., Ltd. ...
Meigh Castings, Ltd. ... ...
Meltham Silica Fire Brick Co., Ltd. ... ...
Mercol Products, Ltd. ... ...
Messenger & Sons, Ltd. ... ...
Meters Ltd. 151
Metropolitan Leather Co., Ltd. ... ...
Milnes Meters, Ltd. ... ...
Mint, Birmingham, Ltd. ... ...
Mitcham Smelters, Ltd. ... ...
Mitchell Engineering Ltd. ... ...
Mitchell, H., & Co. ... ...
Moler Products, Ltd. 159
Monitor Engineering & Oil Appliances, Ltd. ...
Monk, A., & Co., Ltd. 144

N

National Benzole Co., Ltd.... ... ...
National Enamels, Ltd. ... ...
New Conveyor Co., Ltd. ... ...
Newton Chambers & Co., Ltd. ... ...
Norwest Construction & Co., Ltd. ... ...
Nu-Swift, Ltd. 193

O

Oxley Engineering Co., Ltd. 147

P

Parkinson & Cowan (Gas Meters), Ltd. 164
Parkinson Stove Co., Ltd. ... ...
Pass, E., & Co., Ltd. 136
Peckett & Sons, Ltd. ... ...
Peebles & Co., Ltd. ... ...
Pegson, Ltd. ... ...
Peri Controls, Ltd. 163
Power Gas Corporation, Ltd. ... ...

PAGE

Pratt Engineering Co. 192
Press, William, & Son, Ltd. ... Facing p. 173
Pulsometer Engineering Co., Ltd. ... ...

R

R.T.S.C. Home Sales, Ltd. ... ...
Radiant Heating, Ltd. 153
Radiation, Ltd. 176,177
Rawlplug Co., Ltd. 144
Reavell & Co., Ltd. 140
Richmond Welding Co. ... ...
Ride & Bell, Ltd. ... ...
Riley, A. J., & Son, Ltd. ... ...
Roberts, R. E., & Sons, Ltd. ... ...
Robinson, J. H., & Co. (Liverpool), Ltd. ...
Rotameter Manufacturing Co., Ltd. ... ...
Royston, Geo., & Son, Ltd. ... ...
Russell Bros. (Walsall), Ltd. 192
Russell, R., & Sons, Ltd. 159

S

Salter, T. E., Ltd. ... ...
Senior Economisers, Ltd. ... ...
Siebe Gorman & Co., Ltd.... 136
Siemens-Schuckert (Great Britain), Ltd. ... ...
Sigma Instrument Co., Ltd. ... ...
Sigmund Pumps, Ltd. ... ...
Simon-Carves, Ltd. 137
Simon, Richard, & Sons, Ltd. ... ...
Sisson, W., & Co., Ltd. 146
Smith Meters, Ltd. ... ...
Smith, Thos., & Sons (Rodley), Ltd. ... ...
Soil Mechanics, Ltd. ... ...
Spencer Bonecourt, Ltd. ... ...
Sperryn & Co., Ltd. 133
Stanton Ironwork Co., Ltd. ... ...
Staveley Iron & Chemical Co., Ltd. 141
Stein, John G., & Co., Ltd. ... ...
Stelcon (Industrial Floors), Ltd. 139
Stewart & Gray, Ltd. 159
Stewarts & Lloyds, Ltd. ... ...
Stoves, Ltd. ... ...
Strachan & Henshaw, Ltd.... ... ...
Stringer Bros. 194
Sugg, Wm., & Co., Ltd. 142
Sutcliffe Speakman & Co., Ltd. 138
Sutherland, A. G., Ltd. ... ...

T

Tangyes Ltd., ...
Thermal Syndicate, Ltd. ... ...
Thomas & Bishop, Ltd. ... ...
Thomas (Richard) & Baldwins, Ltd. ... ...
Thompson, John, Conveyor Co. 148
Thorp, Thomas, & Co., Ltd. ... ...
Tucker, Eyelet, Geo., Co., Ltd. 153
Tully, Sons & Co., Ltd. ... ...
Turners Asbestos Cement Co., Ltd. 145

U

Underpressure Engineering Co., Ltd. 192
United Kingdom Construction & Engineering Co., Ltd. ... ... Cover II

V

Vale, Thomas, & Sons, Ltd. ... ...
Vaughan, Edgar & Co. Ltd. ... ...
Visco Engineering Co., Ltd. ... ...
Vulcan Stove Co., Ltd. ... ...

W

Wakelin, F. H., Ltd. 194
Walker, C. & W., Ltd. ... ...
Walker, Crosweller & Co., Ltd. ... ...
Wallach Bros., Ltd. ... ...
Waller, George, & Son, Ltd. ... ... Cover IV
Ward, Thos. W., Ltd. 152
Weatherill, F. E., Ltd. ... ...
Weir, G. & J., Ltd. ... ...
Wellington Tube Works, Ltd. ... ...
Wellman Smith Owen Engineering Corpn., Ltd.
West's Gas Improvement Co., Ltd. ... Cover III
West Hunwick Silica & Firebrick Co., Ltd. ...
West's Piling & Construction Co. ... ...
Westwood & Wrights, Ltd. ... ...
Whessoe, Ltd. 135
Whittaker Hall & Co. (1929), Ltd. ... ...
Wilkes, A. H., & Co., Ltd. ... ...
Willey & Co., Ltd. ... ...
Williams, John E., Ltd. 146
Williamson Cliff, Ltd. ... ...
Wilson, George, Gas Meters, Ltd. ... ...
Winn & Coales, Ltd. ... ...
Woodall-Duckham Construction Co., Ltd. Facing p. 172
Wood, Hugh, & Co., Ltd. ... ...

Y

Yorkshire Copper Works, Ltd. ... ...

Agencies ... ...
Appointments Vacant 194
Appointment Wanted ... ...
Contracts Open ... ...
Educational ... ...
Fellowship ... ...
Miscellaneous 194
Notice ... ...
Patents 194
Plant Wanted ... ...
Plant For Sale ... ...
Publications 194
Research Scholarships ... ...

GAS CHAMBERS & COKE OVENS

LIMITED

INTERMITTENT VERTICAL CHAMBERS

CONTINUOUS VERTICAL RETORTS

U.C.B. COKE OVENS

COKE DRY-COOLING PLANT

CHANDOS HOUSE, BUCKINGHAM GATE

WESTMINSTER S.W.1

PHONE: ABBey 6912

FWS 1236

This valve
gets everything under control
ELECTRIC-FAILURE
PROTECTION FOR GAS
by the modern system

the unique PERL 2-WAY
MAGNETIC GAS VALVE
Reg. Design Nos. 855045 and 861922 Pat. No. 684263

ELECTRIC CONTROLS
For Fan-failure,
Flame-failure,
Water-level, Thermostat, etc.

GAS CONTROLS
For Thermostat,
Clock,
Flame-failure, etc.

When electricity fails, the PERL Magnetic Gas Valve automatically cuts off the gas! A 2-way pilot solenoid valve operates the diaphragm rapidly, yet so smoothly that shock pressure waves are entirely eliminated. Other advantages include:—silent operation, impossibility of "sticking", adjustable re-opening, compact design, inexpensive installation.

The full range of PERL controls includes: Flame-failure sets; Relay Valves; Thermostats; Roomstats; Temperature Limit Control; Bridging Ladder Burner. Delivery is prompt. New developments are on the way. Please write for details.

Only PERL can give you such ADVANCED IDEAS
ADVANCED DESIGN · ADVANCED PRODUCTION
TECHNIQUE · CONSISTENT RELIABILITY

If your problem is flame-failure or thermostatic control—PERL can solve it!

PERL CONTROLS LTD
672 · FULHAM ROAD · LONDON S.W.6
PHONE: RENOWN 5555 (3 LINES)

1

Gas Journal

106th YEAR OF PUBLICATION

EDITOR: CLIFFORD A. KING
Deputy Editor: Arthur C. Cross
Technical Editor: Norman S. Smith, B.Sc., Assoc.M.Inst.Gas E.

11, BOLT COURT, FLEET ST., Telephone: CENtral 2236-7
LONDON, E.C.4. Telegrams: Gasking, Fleet.

VOL. 278 NO. 4742 April 21, 1954

CONTENTS

Page

EDITORIAL COMMENT
The Scottish Scene and Atmosphere ... 165
Carrier Gas Technique ... 166
Coal Industry Research ... 167

NEWS OF CURRENT EVENTS
Personal ... 168
Obituary ... 168
Diary ... 168
Gas Coal to be Dearer ... 168
East Midlands: No Price Increase ... 168
Eastern Section I.G.E. visits Bracebridge Works ... 170
Scottish Association of Gas Managers: Presidential Address by Athol W. Brown ... 173
Gasworks Accident Award ... 180
Absenteeism in British Industry ... 180
Symbols, Signs, Abbreviations ... 180
Yorkshire Juniors visit Metropolitan Gas Meters, Ltd. 183
Company News ... 187
Leeds Smokeless Zones Campaign ... 190
Wales Juniors ... 190
Public Service Pay Protest ... 190
Price of Mond Gas ... 190

TECHNICAL RECORD
Exploration for Gas in U.K. By G. M. Lees ... 169
Processing of Coal. Discussion on Paper by M. S. Gaskill ... 171
Aspects of Accountancy. By W. E. Baggs, Chief Accountant's Department, South Western Gas Board 182

GAS CONSULTATIVE COUNCILS
Northern: Gas Prices May be Raised; West Midlands: Metering Industrial Gas; North Western: Uniforms for Meter Readers ... 185

IN PARLIAMENT
Kings of the May; Sulphur in the Air; Dirt Throughout the Areas; Dounreay ... 191

Subscription Rates: Home and Empire 52/-; Foreign 60/-
Full Publishers' Notice: See Page 193
Gas Journal . . . . Walter King Ltd.

The Symbol of Craftsmanship

THOMAS GLOVER & CO. LTD.

GOTHIC WORKS, ANGEL ROAD, EDMONTON, LONDON, N.18 and BRANCHES

TG1

analyse your fuel bills!

The use of Fuel should now be treated in the same manner as a 'prime cost' by industry—and be controlled accordingly. When it comes to subdividing gas charges down to departmental or appliance costing, the Rotary Meter steps into its own. It is designed particularly for this purpose and is now the standard 'check-meter' for many industrial concerns.

Low cost — **Small size**
Negligible pressure loss — **Easy to install**
Unaffected by pressure variation — **Low maintenance**
Accurate from 1/10th up to full load
Prompt delivery

For further particulars apply to:

PARKINSON AND COWAN GAS METERS

(A DIVISION OF PARKINSON & COWAN LIMITED)

ROTARY METER DEPARTMENT (Q), VICTORY WORKS, STRETFORD, MANCHESTER

RM12

INDEX TO VOL. 277
(January-March, 1954)
Inside Back Cover

Gas Journal

VOL. 278. No. 4742 106TH YEAR April 21, 1954

THE SCOTTISH SCENE AND ATMOSPHERE

Certain sections of the Presidential Address by Mr. Athol W. Brown to the Scottish Association of Gas Managers were soothing and reflective; some were refreshing; others were inspiring, pointing a ray of hope into the future of the gas industry. It is to the third category of these parts that we would call especial attention. The address as a whole, of course, was the major item of the Association's Spring Meeting at Dunblane, and it is published substantially in full in our issue today. As was anticipated, the address was very well received, for the President has devoted a great deal of his working life to furthering the Association's interests, and there is widespread appreciation of his late activities as Honorary Secretary and Treasurer. Delivery of the address was clear and Mr. Brown brought home his subtler points without embarrassing over-emphasis.

The two sections to which we would refer come under the headings of 'nationalisation' and 'personnel'—subjects obviously and inevitably interlinked and interwoven. In these columns last week we emphasised that progress revolves more around individuals than it does around organisation; and at the Dunblane meeting we sensed the same tenor of thought in Mr. Brown's comments. We have had five years of gas industry nationalisation. Change-over in ownership and control, with, as far as Scotland alone is concerned, the transfer of about 200 separate undertakings to the direction of a single Board, was a task of first magnitude; and it was effected with remarkable smoothness. This feat of organisation depended for its success on the loyalty of the engineers and managers of former local authority and company undertakings, and on their high sense of public duty. No one will dispute Mr. Athol Brown's contention regarding this. The point has been made before on other platforms and in other places; it is one, however, worthy of current thought concerning the industry's future progress. During the transformation years new machinery had to be brought into play. Senior staff, 'appointed under pressure of time', had to formulate plans of campaign for which there was no precedent. And, as Mr. Brown quietly remarked, it is not surprising that engineers and managers who had known relative freedom of action, and who had been mainly responsible for the direction and policy of their undertakings prior to vesting date, became, to say the least, irritated by repeated requests for information from the new overlords; by the spate of questionnaires; by the consistent addition of strange barriers to freedom of action in a never-ending and ever more complex obstacle race.

In his address as written and printed, Mr. Brown commented that this phase was now passed and that its memory should not cloud our vision. At the meeting, however, he qualified this suggestion by the operative word 'largely'—which, in fact, makes a great deal of difference. His qualification was the signal for smiles, applause, and a straightening of backs throughout the hall. We welcomed this stir on the platform and amid the humbler members in the audience; and had we been less decorous we should have called for a round of applause and a pat on the back for Mr. Brown for showing, in such calm, unruffled fashion, what lies behind his mind. For is it not a fact that ever since May 1, 1949, there has been a growing tendency towards the suppression of original and spontaneous expression at gas industry gatherings of all kinds, technical and otherwise? Is it not a fact that erstwhile hard-headed, unafraid, but large-hearted gas engineers and managers have been encouraged in many quarters, either directly or indirectly, to join a sort of community of pseudo-diplomats, to engulf themselves in the robot spirit, and to quell rather than encourage free speaking?

It is, of course, a broad and important issue. Its adequate appraisement and its ultimate satisfactory solution add to the burden of the already heavy responsibilities of the administrators-in-chief of the gas industry and of their immediate staff. And, we have already said, but reiterate unashamedly, progress revolves more around individuals than it does around organisation. Whatever the personal element, however, the advances directly attributable to nationalisation *per se* are abundantly clear for all to see, not only in Scotland, but in Great Britain as a whole. Integration schemes of magnitude have been completed; others are on the way. Schemes of the type and scope could not have materialised without the sweeping away, in May, 1949, of archaic legislation which was an impenetrable barrier to progress, and the substitution of parochial pride by a broader conception of consumer service. Plans of far-reaching importance have indeed been brought to fruition during the past five years, and do in fact constitute cause for encouragement. As far as the Scottish Gas Board is concerned, schemes of unification have to date

resulted in the closing-down of 19 gasworks as production units, and a further 16 works are so scheduled. This is an indication of progress in one phase only; but the facts are relevant and significant. Many factors have influenced this achievement. Some of them were outlined by Mr. Athol Brown.

Each gas board has its particular problems. Wales differs in marked degree from the Northern area; the circumstances are by no means the same in the North West as they are in Devon and Cornwall, for example. On the other hand, maybe 75% of the problems, though at variance in kind, coalesce in principle. In brief, there is a common denominator—its determination, we assume, being arrived at at meetings of the Gas Council at Gas Industry House. There is room for competition between the boards as represented at these round-table conferences; equally there is room for co-operation among the boards. On paper, it is all very simple. Scotland's major difficulty is the distance between one gas undertaking and another. In Scotland's case especially is there need for delegating responsibility and for the exercise of flexibility. *Esprit-de-corps* is dominant in Scotland. How can this be maintained? Mr. Brown does not gaze through rose-hued spectacles on the effect of nationalisation on Scottish gas personnel. In his address he hinted at the apprehension of the individual that, due to inadequate contact, or lack of contact, with the 'high-ups', his written endeavour (his own pet plan for improvement) may either be docketed and shelved, with or without appropriate tape, or may, without consideration or discussion, face the fate of the waste paper basket. He used, in this connection, terms such as 'inertia', 'delay', and 'inefficiency' in contemplating the effect on staff of lack of knowledge of major policy and intent. Rightly, applause met his simple statement that 'recruitment of personnel into the industry will be much less difficult if there is already in that industry a contented personnel who will reflect those symptoms in keenness and enthusiasm for their jobs'. We could not agree more with this sentiment. The President, adding weight to his argument and lending stature to his address as a whole, suggested that in the formative post-nationalisation years too great a tax has been levied on the time of members of the Scottish Gas Board, so 'restricting their opportunities to give attention to matters other than those demanding immediate action, and to maintain contact with district officials'. Irrespective of his chain of office and his obvious desire to 'keep the party clean', Mr. Athol Brown expressed the view that the time factor may also be responsible, on occasion, for an apparent lack of liaison between departments at head office. And he went on to say that, now the major problems of organisation have been dealt with, members of the Scottish Gas Board might to advantage have more time to consider means of developing closer liaison at district level. Which point members applauded vigorously. It will be gathered that Mr. Brown's humble address was in fact robust. He has dared to tread paths which even angels would think twice about traversing. The sections which we have singled out for this comment strengthen in some degree our hope that the nationalised industry will, within the next few years of its development, rid itself of any tendency to insipidity and dullness — none the less depressing and boring though it be cloaked in the tapestry of politeness.

THE CARRIER GAS TECHNIQUE

Discussion of the results and implications of the carrier gas technique in the continuous vertical retort has been carried far. We now await further data arising out of longer experience. The discussion, reported in our issue today, of Mr. Gaskill's paper presented to the London and Southern Junior Gas Association, brought out a number of new points. Mr. L. J. Clark remarked that the paper showed the new technique against a broad canvas of the whole of the processes of coal gasification. One effect of the new technique might be to extend the economic range of coals for treatment in the continuous vertical. The most obvious form this extension could take would be in the possibilities of blending. Blending requires breaking to a very small grading. Results so far indicate that coals of that size can be carbonised with the carrier gas at rates per retort equal to those hitherto achieved only with nut coals. Mr. Clark called attention to the neglect of the coal-burning producer in the gas industry. The point is, strictly, irrelevant to the present discussion, but there might be two directions in which low-grade, and low-priced, coal could take the place of high-priced coke in the producer for heating the retort settings and in the water gas plant for supplying the carrier gas. Indeed, if the generator of the blue water gas plant is not to be modified to gasify something of less value than the best grade of coke, the economies realised by the carrier gas process may be small, in spite of Mr. Gaskill's assurance that the total quantity of coke available for sale will be substantially the same whether water gas is generated in the retort or whether it is supplied from outside plant.

Mr. Fairman raised the interesting question whether permanent gas could not be used in intermittent verticals, instead of steam, as a coke coolant. He had in mind a system where the hot coke is dropped into a cooling chamber below the retort. We would suggest that the similarity between that system and the continuous vertical retort stops short at the fact that 'there was coke to be cooled'. There must be two processes going on in Mr. Fairman's cooling chamber, the more effective of which, the endothermic steam-coke reaction, would be absent if a permanent gas was used as coolant. But Mr. Gaskill thought there might be something in Mr. Fairman's comments in this regard. Messrs. Dunning and Hirst foresaw some difficulty in the use in standard appliances of gas generated in this way; but surely, as Mr. Gaskill replied, the properties of gas generated by steaming and by the use of water gas as a carrier would be very similar. The same argument might perhaps not apply to other forms of carrier gas.

Our contemporary, *Coke and Gas*, has submitted the two papers and the technique they describe to a searching and lengthy analysis in an editorial comment. We admire its treatment of the 'technology of internal heating'. We suggest, however, that there is not only the much slower 'heat transmission through a wall of brickwork . . . than direct heat transfer from moving gases to particles of coal . . . placed in the path of a stream of hot gases.' There is also the heat transmission, much slower still, through a layer of hot coke to

the body of the uncarbonised coal within the 'cone' and behind a plastic layer.

Our contemporary points to the use of the carrier gas technique in some varieties of low temperature carbonisation and to the anticipation of its present use in gas retorts by even earlier workers. Some of these earlier proposals had different ends in view. Mr. Elgin has reminded us of Mr. Braidwood's attempts at Coatbridge in 1923 to use blue water gas injection to increase the production of ammonia, then considered desirable. Having failed in this Mr. Braidwood did not go on to increase the rate of water gas injection. One may conjecture that, if he had done so, he might have observed an increase in the gas-making capacity of his retorts. Dr. Lessing refers to suggestions made by himself and others, at about the same time, incorporating the principle of gas injection. The main stress in these suggestions, and others like them, was on the effect of sweeping gas and tar vapours out of the retort, in conjunction with rapid transfer of heat from the hot coke zone to the cooler carbonising zone.

The most interesting passage in the *Coke and Gas* editorial is the enunciation of a mystery which should be explained—why does not the injection of steam have the same effect in accelerating carbonisation as permanent gases? The physical conditions appeared to be substantially the same—they are worked out in some detail in this passage—even allowing for the endothermic reaction between steam and coke. 'There does not appear, on the face of it, to be any marked difference that would account for the immensely greater output observed.' Evidently we have to look for some explanation other than the purely physical. We have, indeed, been informed that some inconclusive trials were made by West's team with heavy steaming—heavier, that is, than usual—when something of the same acceleration was observed. The trials had to be stopped within a relatively few hours on account of the impossible conditions appearing in the coal feed and generally at the top of the retort. There does seem to be a flavour of perpetual motion about the new process and we are sure there is a whole crop of mysteries and questions to be cleared up. We do not think, for instance, that it has been established that more coke was used in the producers in the carrier gas experiments. At any rate, we doubt if it need have been.

There is one sentence in the *Coke and Gas* editorial to which we take exception. It is stated that 'when producing gas of high calorific value in continuous vertical retorts the thermal output is larger than when producing a gas of lower calorific value in the same retorts.' This is not necessarily true. It should be possible with correct operation to maintain at least an equal thermal output per retort at all calorific values over a range which varies with the type of coal treated. The range is wide with Scottish coals, say 500 to 400 B.Th.U. per cu.ft., restricted with Durham coals, say 540-475, and less so with Yorkshire coals, say 520-450. But, as we have said more than once before, the curve of best possible performance is not straight. There is for each type of coal a calorific value at which therms per retort is a maximum—and this maximum is never at the top of the range.

And now a word on the selection of the carrier gas. A serious defect of steaming is that the whole of the steam is never converted to water gas in the retort. There is always a substantial surplus going through to condense later, carrying heat to waste, throwing useless work on the condensers, and increasing the volume of troublesome effluent. It seems to us obvious that the permanent gas used as a carrier should contribute as much as possible to the thermal value of the mixture, be as free as possible of inerts, and not be liable to degradation in passing through the retort. It should be cheap to produce in outside plant, itself simple in construction and convenient in operation. Maybe these considerations point to blue water gas as preferable.

It would seem that we shall not be able accurately to assess the possibilities of the general technique of carrier gas until a long-term trial has been carried through with plant specifically designed for this particular technique. We indicated last week some of the difficulties which would be encountered in applying it to existing plant working on base load production. It may be that the most promising field of application would be that of meeting peak, or at least seasonal, loads. One can at present readily visualise a fairly large retort house, fitted with the necessary equipment and containing standby blue water gas plant, the thermal output of which could be doubled within a few hours to meet emergency demands. It would be standby water gas plant with coal gas enrichment instead of oil-gas. It might prove that, though the cost of manufacture of such peak load gas was higher than that of base load gas, it would be considerably lower than that of some other forms of peak load gas. Maybe we are thinking too closely of past experience and current practice. Further experiment and experience may well disprove our optimism in this regard and strengthen the contentions of Mr. Nicklin and Mr. Redman.

COAL INDUSTRY RESEARCH

Sir Charles Ellis, F.R.S., Scientific Member of the National Coal Board, described the experimental work of the past year in his Presidential Address to the British Coal Utilisation Research Association at its annual meeting recently. The new domestic appliance laboratories, he said, had already shown their value, and new design features had shown the possibility of reducing smoke in domestic appliances. Sir Charles referred to the use of small bore pipes with forced circulation for small-scale central heating as 'a promising development.' On gas producers, the main work of the year was a study of producer tars to reduce blockage in the distribution mains; and in this regard considerable success had been achieved. Fundamental studies of coal, he continued, had hitherto been concerned mainly with its chemical constitution, but an enormous saving of empirical work would result from a reasonable knowledge of the structure and constitution of coal; and the Association was devoting considerable effort to this subject. One main line of attack was the investigation of the solvent extracts of coal, which had been shown to reflect the structure fairly faithfully. A quite different fundamental investigation aimed at studying the mechanical properties of coal such as the elastic constants, fatigue, and breakage. Sir Charles thinks that it is not so generally appreciated that one of the Association's functions was the transfer of staff trained within its walls to outside appointments. In fact, this is one means of expediting the passage of scientific method to industry. The Association offers a tangible service to its members in that it allows them to send young science graduates to spend a period of training in the Association's laboratories. This is an important aspect of research.

Personal

NORTH THAMES APPOINTMENTS

The North Thames Gas Board has announced the following changes and appointments in the Chief Engineer's Department:

With immediate effect: MR. L. J. CLARK to be Development Engineer, Chief Engineer's Department. MR. G. DOUGILL, Planning Engineer, to have special responsibility for planning at Beckton. MR. J. CROSS to be Deputy Station Engineer, Beckton.

With effect from May 1: Southall to be taken out of group and MR. D. C. BERTRAM, Station Engineer, to have the status of Group Engineer. MR. C. C. CUNNOLD to be Station Engineer, Nine Elms, with the status of Group Engineer. (This will follow the retirement of MR. W. E. DAVIES.) MR. K. C. MEAD (Station Engineer, Mill Hill) to be Station Engineer, Kensal Green. MR. B. W. DAWKINS (Deputy Station Engineer, Bromley) to be Station Engineer, Mill Hill. MR. F. A. TIMMINS (Senior Assistant Engineer) to be Deputy Station Engineer, Bromley. MR. W. J. K. WARE (Harrow) to be Senior Assistant Engineer, Bromley.

The following appointments on the Eastern Division will take effect on June 1, following the retirement of MR. C. H. COLEY, Divisional Manager: MR. J. A. BUCKLEY to be Divisional Manager; MR. L. B. L. HOWLETT to be Commercial Assistant to the Divisional Manager.

MR. LANGTON HIGHTON, Cockermouth, Cumberland, has been re-appointed by the Minister of Fuel and Power a part-time member of the Northern Gas Board.

LIEUT.-COLONEL P. D. IONIDES, D.S.O., has resigned from the Board of Babcock and Wilcox Ltd. after 26 years service. SIR PERCY MILLS and MR. W. F. C. SCHAAP, the Company's Chief Engineer, have been appointed to the Board.

MR. ALEX. W. LEE, Deputy Chairman of the West Midlands Gas Board and formerly general manager and secretary of the City of Birmingham Gas Department, is to leave the country shortly after his retirement to visit his native Australia. He was received, with his wife, last week at the Council House and thanked for his services to the City by Alderman G. H. W. Griffith, Lord Mayor of Birmingham.

MR. F. J. HEALEY, formerly Assistant Distribution Engineer of the Birmingham Division, West Midlands Gas Board, has left by air to take up an appointment as Distribution Engineer of the Singapore City Council Gas Undertaking. Mr. Healey is no stranger to overseas service, for prior to joining the West Midlands Gas Board he was with the Rio de Janeiro and Sao Paulo Gas Undertakings. During the war he served with the 14th Army in Burma, holding the rank of Lieut.-Colonel. He started his career in the gas industry with the Bournemouth Gas and Water Company.

Gas Coal to be Dearer

The pithead price of gas coal is to be increased by 3s. a ton from May 3. Announcing this, the National Coal Board refers to 'unavoidably high costs of production such as those of carbonisation coals in certain areas.'

Giving reasons for the general increase in coal prices—the only decreases in the price revision apply to certain lower grade domestic coals—the Coal Board says that its total deficit for the year would be about £17 mill., but for the increase. This is in addition to the deficit accumulated in previous years of £14 mill.

'It is to meet this that the Board now finds it necessary further to increase the price of most coal supplied by inland distribution.'

The electricity industry will pay 1s. 5d. more. Asked at a Press conference about differences in prices charged to gas and electricity under the 1951 coal price structure, a spokesman for the N.C.B. said the reasons were solely based on coal quality, coking values, etc.

Obituary

RAE P. NORMAND

With very deep regret we learn, as we go to press, that MR. RAE PRINSEP NORMAND died during the afternoon of Monday, April 19. It is but four weeks since he received from a large gathering of his closest friends a presentation and a tribute of affection on his relinquishing the Secretaryship of the Evening Star Lodge, in which office he had served for 28 years. Rae Normand went to hospital on April 11, was operated upon last Thursday, and was progressing cheerfully until a relapse occurred on Sunday. Funeral arrangements are not yet complete; they will be announced in the Daily Press.

MR. ROBERT M'NAIR, for many years Manager of the Linlithgow Gasworks, has died at the age of 87. He was first appointed a Gas Manager at Eyemouth, Berwickshire, and in 1897 went to Linlithgow where he remained until he retired in 1932. Mr. M'Nair is survived by one son and two daughters.

MR. WILLIAM BELL, manager of the Northern Group of the Central Division Southern Gas Board, died suddenly on April 6 at the age of 60. Mr. Bell was a native of Dungannon, County Tyrone, Northern Ireland, and received his early training there and at the works at Ballycastle. He then came to England as Manager of the former Theale Gaslight and Coke Company. This undertaking was absorbed by the Reading Gas Company and he took up the post of technical assistant on the Reading works in 1915. In 1930 he was appointed Works Superintendent and in 1947 Works Manager. On the nationalisation of the industry, he was appointed Engineer and Manager of the Reading and District gas undertaking and subsequently Group Manager.

MR. THOMAS ALLEN, former Managing Director of Gibbons (Dudley), Ltd., and Gibbons Brothers, Ltd., Dudley, has died, aged 77. Mr. Allen joined B. Gibbons, Junr., Ltd., retort and firebrick manufacturers (now Gibbons (Dudley), Ltd.), when he was 13, and was made a director in 1912. Also, he had been taking a share of the work connected with Gibbons Brothers, Ltd., gas engineers and contractors, and was appointed to the Board of Directors in 1919. Mr. Allen was instrumental in securing the licence for the erection of Kogag coke ovens in this country, and in 1933 representatives of the Coke Oven Managers' Association of Great Britain visited the Cargo Fleet Ironworks to inspect the first 42 ovens installed by Gibbons Brothers, Ltd. He was Chairman of the Stourbridge Firebrick Association for the year 1922-23.

Diary

April 22.—WALES AND MON. JUNIORS: Annual General Meeting. Presidential Address and Paper. Aberystwyth.

April 27.—MIDLAND JUNIORS: Annual General Meeting, Staff Mess Room, Birmingham.

April 28.—MANCHESTER JUNIORS: Visit to the Stanton Ironworks Co., Ltd., Nottingham. 'Some Aspects of Grid Distribution.' K. Summersgill, North Western Gas Board.

April 29-30.—EAST MIDLANDS GAS BOARD: Staff Conference, Skegness.

April 29.—NORTH THAMES G.C.C.: Caxton Hall, Westminster.

April 30.—MANCHESTER AND DISTRICT SECTION, I.G.E.: Annual General Meeting. Chairman's Address, H. Johnston, Chief Engineer, North Eastern Gas Board; at Manchester.

May 4.—EAST MIDLANDS G.C.C., Victoria Station Hotel, Nottingham, 11.30 a.m.

May 4.—SOUTH EASTERN G.C.C.: Caxton Hall, Westminster, 11 a.m.

May 5.—YORKSHIRE JUNIORS: President's Day: Visit to Moor End Gasworks, Cleckheaton, 11 a.m.; British Belting and Asbestos, Ltd., Cleckheaton, 2.30 p.m.

May 7.—LONDON JUNIORS: 'Gas in the Sugar Industry,' H. Capper, Divisional Industrial Representative, South Eastern Gas Board, 178, Edgware Road, 6.30 p.m.

May 8.—EASTERN JUNIORS: Annual General Meeting to be followed by afternoon visit. Ladies invited. Harwich.

May 8.—SCOTTISH JUNIORS (EASTERN): Visit to Dumbarton Gasworks.

May 13.—LONDON JUNIORS: Whole-day visit to Ciment-Fondu Works.

May 13-14.—WALES AND MONMOUTHSHIRE SECTION, I.G.E.: Spring Meeting, Porthcawl.

May 15.—SCOTTISH JUNIORS (EASTERN): Annual General Meeting, Edinburgh.

May 17.—EASTERN G.C.C.: Connaught Rooms, Great Queen Street, Kingsway, W.C.2, 2 p.m.

East Midlands: No Price Increase

Prices of the East Midlands Gas Board will not be increased for a minimum period of six months, despite the increase in the price of coal.

In a statement, Mr. Sydney Smith, Chairman of the Board, said: "Five months ago we cut our gas prices and pledged ourselves to hold them at this level as long as economically possible. The increase in coal charges will cost us directly an approximate £200,000 more a year; and this, together with other additional costs which have occurred since we cut prices last December, means that we face an extra expenditure of some £830,000 a year."

Faced with this new burden, he continued, implementing their promise had been a matter of grave consideration for the Board. It was still, however, their firm conviction that, in the nation's economic interest, a firm stand must be taken against ever higher prices.

EXPLORATION FOR GAS IN U.K.

By G. M. LEES,

M.C., D.F.C., Ph.D., F.G.S., F.R.S.

The following is our summary of an address given recently at a joint meeting in Chester of the Stanlow Branch of the Institute of Petroleum and the North Western Section of the Institute of Fuel. Mr. J. S. Parker, Chairman of the Stanlow Branch, presided.

Underground natural gas supplies, said the author, were nature's secret, and it was a secret of the type which scientists were seeking to unravel, in full awareness of all the uncertainties and hazards. Sir Harold Smith, Chairman of the Gas Council, had already announced that the Gas Council was to make a systematic search for gas in this country on his (the speaker's) recommendation. About 800,000 tons of oil had been produced from oil fields in this country; but only two gas fields had been discovered, and they had not been developed for various reasons. One field was in Scotland, near Dalkeith, another in the Eskdale Valley in Yorkshire. The Gas Council had asked for a comprehensive survey and exploration of the gas possibilities of the country additional to such gas as might occur associated with oil.

In other parts of the world, important quantities of natural gas were produced. In some cases the gas was in solution in the oil of the oil fields, or as gas caps above the oil; in other situations gas occurred quite independently of oil. The natural gas industry of many countries had leaped ahead, particularly in the post-war years. In the U.S.A., 93% of the total gas used came from gas fields and the pipeline systems delivering gas to consuming centres were thousands of miles in length.

Position in Western Europe

Because of the scarcity and the high price of coal in several of the western European countries, the search for natural gas had become increasingly important, and during the last four or five years discoveries had been on a substantial scale.

There were, continued Dr. Lees, gas fields in the Po Valley giving supplies to Milan, Venice, Turin, and Genoa; in South France there had been important discoveries near the Pyrenees, of a size capable of supplying a great part of southern and central France. In Germany, a gas field of considerable size at Bentheim produces 4 mill. cu.ft. a day, piped to chemical works in the industrial area of the Ruhr. Three new gas fields had recently been found in the same vicinity of north-west Germany. In Holland, there had been important gas discoveries which at present were supplying about one-sixth of the total gas requirements of northern Holland; there were expectations of further discoveries. When one noted the successes which had been achieved in Italy, France, Holland, and Germany, the obvious question was whether by energetic exploration we might have comparable success in this country.

In Eskdale a boring for oil found a gas field, but the extent of it had not yet been explored. Recently a second well, drilled by the I.C.I. and the D'Arcy Exploration Co. (Anglo Iranian Oil Co. subsidiary) in co-operation, had been successful with a capacity of 2¼ mill. cu.ft. a day. Further drilling would be necessary before the total size of the field could be assessed.

Expectation of Success

Dr. Lees then described the geological conditions which govern the accumulation of oil and gas and the exploration methods used in their discovery. Where surface outcrops are adequate the underground structure can be deduced from the surface pattern, but where uncomformable strata or alluvium obscure the deeper structure geophysical methods have to be used. The latter use gravity, magnetic, and seismic principles. The most reliable and important method is the seismic. Geophysical methods do not locate oil or gas as such but only determine the structure of the strata at depth. The hazard of whether or not an apparently favourable structure is oil or gas bearing at depth remains to be resolved by exploratory drilling.

Experience throughout the world has taught us that only one well in five or even 10 exploration wells drilled has an expectation of success. In this country so far the results have been of that order. The author discussed briefly the various geological provinces of which this country is compounded, and argued that there is a sufficiently strong case for continued exploration both for oil and for gas. The oilfields of Nottinghamshire were discovered just before the war and in the early war years. Then followed a long series of disappointments until recently, when a new field was found at Plungan, on the Notts-Leicestershire border—the first success for 10 years of continuous exploration effort.

Mr. SIMPKIN, who opened the discussion, said the presence of gas in coal mines was well known from the beginning of the mining industry. Within recent years, the National Coal Board had taken up a question which had intrigued the former owners of collieries—namely, how to extract the gas from coal seams other than by the ordinary ventilation systems of the pits. Gas occurred in varying quantity in every coal seam. If it were possible to extract the gas, the amount of methane, which might be less than 1% of the aggregate, would reach a phenomenal figure. The N.C.B. has been carrying out experiments with the idea of bringing out methane from the coal mines in a much more concentrated form, thereby removing the danger of explosions—a problem which has troubled the coal mining industry for centuries. The possibility of using this methane gas for power purposes opens up new fields of opportunity. Mr. Simpkin asked for more information about the occurrence of gas with oil.

Association of Natural Gas with Oil

Dr. LEES replied that the knowledge of how oil or gas is formed in the ground is unsatisfactory. The general types of rock associated with oil are known, but the geologists are at a loss to give satisfactory explanations of the process of oil formation. There is, in fact, no known case in the world of oil being formed at present. Neither is it known why one form of deposit produces gas and not oil. Some areas are gas-bearing without any associated oil, but more commonly oil and gas occur together. The total gas reserves of the world are approximately equal to those of oil in thermal value. Even the most optimistic workers in this country do not expect our possible gas fields to be of a size that will affect our total economy. Such gas fields as may be found will be of local importance, and will relieve the shortage of supply of coking coal. The gas will also be available as a raw chemical, and, in the case of Eskdale, the intention is that it will be piped to the I.C.I. works at Wilton. The quality of the Eskdale gas was almost entirely methane, 94%-95%, with a small percentage of carbon dioxide and a small percentage of nitrogen.

Dr. MILLET commented on the high cost of exploring for gas at Eskdale and asked if there was no cheaper or quicker method of boring.

Dr. LEES: 'There is no direct method of detecting underground gas or oil. Indirect methods tell only part of the story. The other part has to be resolved by the hard way of drilling. The discovery of oil and gas involves many uncertainties and hazards.'

In reply to other questions, Dr. Lees said that, with exploration wells, great care was necessary, because gas was less easy to detect. On the other hand, a gas well was simpler to operate than an oil well.

Institution of Gas Engineers

Eastern Section Visits Bracebridge Works

Nineteen years ago the members of the Eastern Counties Gas Managers' Association visited their President, Mr. Bernard Clarke, Engineer Manager, and Secretary of the Stamford and St. Martin's Gas Company, at Stamford. On April 8 the members of what is now the Eastern Section of the Institution of Gas Engineers again had the pleasure of visiting Mr. Bernard Clarke, this time their Chairman, and now Divisional General Manager of the Lincolnshire Division of the East Midlands Gas Board. The Divisional headquarters are at Lincoln, and it was at the Saracen's Head Hotel in the centre of the city that Mr. Sydney Smith, Chairman of the East Midlands Board, welcomed the guests before they went on to visit the Bracebridge Gasworks. The members were the guests of the Board at luncheon.

MR. SYDNEY SMITH, whose late arrival at the luncheon was due to his attendance at a civic function at Leicester, welcomed his fellow members of the Eastern Section to Lincoln, and apologised for the absence of his Deputy Chairman, Mr. E. H. Harman, who was detained at another meeting at Sheffield. He was glad of the opportunity to renew some old friendships; in these busy days such opportunities were few and far between.

Fruits of Earlier Planning

After five years of nationalisation we were beginning, as an industry, to see the fruits of earlier planning, and every area board today was in a position to point to economies resulting from the integration of undertakings, from increased efficiency of production, and from many other directions which would not have been possible without the resources on which they were now able to call. Those economies had been brought about largely by team work, which had its origin to a great extent in the members of the Institution of Gas Engineers.

The nationalisation of the gas industry, continued Mr. Smith, had a flying start because Tom, Hunter, Bill, and Bernard, and many others like them, knew and trusted each other from their meetings together on just such occasions as the present; so it might be said that the Institution deserved a great deal of credit for any success that was apparent today. In the East Midlands they were proud to feel that their team was second to none in the country. There might be others just as good, but for enthusiasm and keenness, co-operation and loyalty, their staff and employees would be hard to match, and as Chairman of the Board he was grateful to them all for the results of their efforts. 'After all,' he added, 'we did pull off "Youth in the Kitchen"—not to mention Festival Fare—and I nearly forgot about the reduction in the price of gas.'

Times Have Changed

Many present that day were there when the then Minister of Fuel and Power, Mr. Emanuel Shinwell, inaugurated the new carbonising plant and ancillaries at Lincoln in October, 1946. Since then further extensions had taken place, most of them since vesting date, culminating in the extension to the carbonising plant which they were about to inspect. As guests invited to that ceremoney in 1946 Mr. Bernard Clarke was then at Stamford and he (Mr. Smith) was at Romford. Neither was known to the other, and he was sure Mr. Clarke never imagined that he would become General Manager of the Lincolnshire Division, responsible for some 25 undertakings, in a matter of less than five years, and speaking for himself, he certainly never expected to be addressing that gathering as Chairman of the Board.

At that time nationalisation was a long way off. It had meant many changes, most of them for the better, and not the least it had served to weld more firmly together the members of the District Sections of the Institution into teams of technicians now striving together for the broader objective of the success of the boards with whom their loyalties lay.

In spite of the trials and tribulations through which they had passed—shortages of coal, shortages of steel, shortages of pipes, hire purchase, purchase tax, and publicity restrictions, not to mention demands for 12-year forecasts, and further cuts in coal—as well as competition from other fuels—they still continued to expand, although at a slower rate than they could hope.

Still Scope for Improvement

He was sure they would agree that there was still plenty of scope for increased efficiency, not only of production and from integration, but in many other directions, and particularly in improved service to consumers. Higher and higher costs of raw materials and wages and salaries were not conducive to lower prices, but they could do much to help themselves by constructive thinking and wise management. That was their job. No matter what their prices might be, they could never hope to increase their consumptions per consumer unless their consumers were satisfied, and indeed appreciative of the service they gave.

There was no truer saying than 'It is better to give than to receive.' In their own parlance that meant 'Give willing service and gain increased consumption'; in short, 'Give so that you may get.' He would leave the thought with them. In welcoming them to Lincoln he would also extend a further invitation to the members of the Eastern Section, and he hoped as many as possible would attend the meeting to be held at Skegness on May 17 and 18.

MR. BERNARD CLARKE gratefully acknowledged the Board's hospitality and said that one of the privileges of being Chairman of the Section was that he received the support and confidence of the Chairman and members of the Board.

The outstanding item in the tour of the Bracebridge works was the latest extension to the continuous vertical retort plant. Mr. Shinwell, then Minister of Fuel and Power, opened No. 3 Woodall-Duckham installation in 1946, comprising sixteen 82 in. retorts with a capacity of 2 mill. cu.ft. per day, and a further bench of 16 retorts, with a nominal capacity of 2 mill. cu.ft. per day, was put to work in January of this year. A start is about to be made on the complete re-building of the No. 1 installation, now 22 years old, and advantage will be taken of the opportunity of effecting various improvements, including the scrapping of the coke plant and coal handling gear and replacing them by belts feeding to and from duplicate 100-ton per hour gravity bucket conveyors in the more modern retort house nearby.

Other new projects which have received approval include the provision of a new booster and compressor house, a 4 mill. cu.ft. per day gas condenser, already delivered for erection during 1955, a rail weighbridge, due to be completed next August, and a new main works entrance incorporating a new 25-ton road weighbridge, which will obviate the present traffic congestion at the entrance from the Lincoln-Newark road.

Latest Manufacturing Results

Manufacturing results in the year just ended (to March 31) were as follows:

Coal carbonised	91,946 tons
Gas made ...	1,527,977,000 cu.ft. (7,257,891 therms)
Gas made per ton of coal carbonised	16,598 cu.ft. (78.9 therms)
Coke made available for sale per ton of coal carbonised ...	9.06 cwt.
Breeze made available for sale per ton of coal carbonised ...	1.84 cwt.
Coal tar made per ton of coal carbonised ...	17.0 gal.
Sulphate of Ammonia produced	410 tons
Declared calorific value	475 B.Th.U. per 100 cu.ft.

At the end of the visit members were entertained to tea in the retort house canteen, and the thanks of the visitors for a thoroughly enjoyable day were expressed by MR. W. A. EVETTS, Divisional Engineer, Watford, and Senior Vice-Chairman of the Section, both to Mr. Sydney Smith, as Chairman of the East Midlands Board, and to Mr. Bernard Clarke, as Chairman of the Section, as well as to the guides.

Natural Gas in Jugoslavia.—Proved reserves of natural gas in Jugoslavia are at least 5,000 million cu. metres and potential reserves are more than four times this total. The gas is now being exploited in the Banat area and a 40 kilometre pipe-line is being laid to carry the gas to Vrsac. A pipe-line to Belgrade is also planned. The possibility of using natural gas in the manufacture of nitrogenous fertilisers is under consideration.

PROCESSING OF COAL

Following is our report of the discussion on the paper presented by Mr. M. S. Gaskill, Technical Director of West's Gas Improvement Co., Ltd., to the London and Southern Junior Gas Association on April 9. The paper was published in the 'JOURNAL' of April 14 (pp. 109-121)

The **President** (Mr. W. Johnson) said he had been conscious during his term of office that the programme had been of little interest to the manufacturing side, in fact Mr. Gaskill's paper was the only one in the session on that aspect of the gas industry, but whatever they had lacked in quantity was made up in quality. It was a particular pleasure to introduce Mr. Gaskill because they went to Manchester College of Technology together more than 30 years ago, and knew something of each other. He had watched with interest his progress to a very important position in West's Gas Improvement Co.

He was pleased to see that the claims Mr. Gaskill had made were very conservative; as the author had said, this was only the beginning of some very interesting work. They had had no practical experience of the process and those who spoke would doubtless be cautious in their remarks, but there were many questions which members would like to ask.

The Coal Burning Producer

Mr. L. J. Clark (North Thames) said Mr. Gaskill had painted a broad canvas of the whole of the processes of coal gasification, and had high-lighted recent development. In his general survey he had emphasised the importance of the great flexibility that was available in their various methods of treating coal, and it might be hoped that when they had sorted them out they would have the answers to the Coal Board when it required to push up the price of one coal in relation to another. He was pleased to see that Mr. Gaskill had given special place to the coal burning producer, which offered considerable possibilities for the manufacture of heating gas on the works. Non-caking coals were generally cheaper than coke and the thermal yield per ton tended to be higher. He was disappointed that he did not refer to the two-stage producer in which distillation was separated from gasification as the type of gas available from such plants was likely to be more acceptable in quality and less likely to cause serious deposits in the gas off-take system.

One possible disadvantage of the 'carrier' gas system as so far developed, using producer gas and water gas, was the relatively low calorific value of the final gas, and it would be a great advantage if coal gas could be used as the carrier without suffering serious degradation. In this connection, it might be worth considering operating the retorts at lower temperature than normal but with the same coal throughput and using coal gas as the carrier. This would probably have the advantage of longer life of the refractories, a lower fuel consumption and a reduced degree of degradation of a 'carrier' gas.

One's first reaction to this development was to query the difference between the recuperative effects of normal steaming and those of 'carrier' gas. In the first place, it should be made clear that whereas 'carrier' gas might permit of 50% greater throughput and, consequently, 50% more therms of coal gas, the actual thermal output from the retort might have risen by only about 25% as compared with steaming because the water gas contributed 20 to 25% of the thermal output. The main difference between the two systems obviously lay in the degree of recuperation of heat within the retort. With a normal C.V.R. system with slight steaming the thermal losses from the retort itself were made up of:—Hot gas, 3.5 therms per ton of coal; hot coke at base of retort before entering steaming zone, 11.5 therms per ton of coal; total 15.0. Of the 11.5 therms in the coke, approximately 0.75 were returned in the sensible heat of the B.W.G.; about two therms were used in the endothermic reaction; and 2.75 therms transmitted as pre-heat to the secondary air leaving six therms as sensible heat in the coke rejected to the coke box. With this system the net heat consumption which had to be transmitted through the walls of the retort would amount to 14.25 therms per ton. With the 'carrier' gas system, and assuming a similar coke reject temperature equivalent to six therms per ton, the net heat required through the retort walls would be 9.5 therms per ton.

It was encouraging to find that work was being done on this process in several places in the country. Some preliminary tests had been carried out in a few retorts in the North Thames Gas Board since last September, and these had proved sufficiently encouraging to warrant the equipping of a 4½ mill. cu.ft. per day C.V.R. installation for large-scale experiments using producer gas, water gas and coal gas.

The Utilisation Angle

Mr. E. W. B. Dunning (Watson House), speaking for the utilisation side of the gas industry, said he was interested in the burning of the gas in appliances. It was necessary to consider the effect on the appliances, a matter on which he could find no information in the paper, and it was important to know whether the process was to be employed intermittently, and whether there were to be temporary changes in the gas. If there was to be a permanent change in the gas it would become necessary to readjust a large number of appliances, and the cost might well be much greater than that of an equivalent modification on the gasworks, having regard to the fact that the work could not be done so economically and that it might involve calling on anything from 20,000 to 100,000 consumers.

There might be difficulties in adjusting the appliances to suit the gas, and he was interested in the A.T.B. number and the kind of gas they were to make. In 1950 Mr. Mills gave a paper to the Institution of Gas Engineers on the adjustment of appliances and showed some diagrams for the North Thames area illustrating the distribution of values for specific gravity and A.T.B. number throughout the year. They could make the appliances to suit the gas, provided they knew what kind of gas was being made and to what extent it was liable to change. They were, in fact, studying the question of the interchangeability of gases, based on work done by Weaver in America, where they were faced with the bigger problems of natural gas and its effect on appliances.

Scurf Formation

Mr. A. A. H. Clark (North Thames) raised the question of scurf production. He thought that due to the increase in coal throughput and possible degradation of the carrier gas scurf production would be greater, rather than less.

Mr. J. B. McKean (South Eastern), referring to Table 12, questioned the claims made regarding outputs by re-cycling blue water gas and suggested that they could achieve almost as great an output by the orthodox methods. With very low steaming of the coal charge in the retort they would have a greater throughput of coal as compared with steaming down to 456 B.Th.U. They would get a richer gas and that would accommodate quite a large volume of blue water gas made in the orthodox water gas plant.

He had made some rapid calculations and it appeared to him that if they took away the blue water gas that had been used for re-cycling from the therms per ton of coal (9.1) the net yield of straight coal gas became 77 therms per ton.

Mr. J. B. Grant (North Thames) said that in the beginning of his description of the 'carrier' gas process Mr. Gaskill had indicated an expectation that there would be an increase in the reactivity of the coke, but in the summary of results there was little apparent effect. Could he give some indication as to why that was so, and of the criterion they used for judging the reactivity.

Increased Yield of Coke

Mr. R. J. Newman (North Thames) raised the question of the abradability of the coke, and asked what it was proposed to do with the enormously increased yield of coke from existing plant. They had not euough room to accommodate the coke already on their hands.

Mr. J. A. Nicholls (North Thames) said it was constantly becoming more difficult to get suitable coals for carbonising plants, and some boards appeared to have been deciding against vertical retorts. He welcomed Mr. Gaskill's assurance that the process would help them to handle different coals. The coal they received in the future would become more difficult as the demand for quantities rose. If they got the extra throughput on the retorts as indicated the design might have to be altered to avoid any hold-ups.

Mr. T. B. V. Hirst (Tekon, Ltd.), speaking from the utilisation angle, said he noticed that with the carrier gas there was a tendency to increase the 'awkward squad'—the hydrocarbons and the CO content. From the point of view of utilisation he saw no reason why appliances should not be designed to burn any combustible gases, but care must be taken to see that the initial cost was reasonable, that the

appliances were of good design, and that maintenance was right.

Courage and Altruism

Mr. A. J. S. Wiseman (North Thames) said there were quite a lot of products that could be regarded as by-products. He believed coke was, if not the largest, at any rate one of the largest manufacturing products in this country, and a great deal of harm might have been done in the past by the use of the word 'by-product' in connection with coke. The sooner they adopted the practice of referring to it as a processed fuel the better. He admired Mr. Gaskill's courage and altruism in putting forward with such enthusiasm a carbonising process which ought to reduce by half the number of retort houses required. On the utilisation side of the gas industry they had the apparent paradox that a constant attempt was being made to reduce the quantity of gas required for any given process, and they were all aware of the handsome dividend which the effort had paid.

They had not sufficient data at the moment to examine critically the process outlined by Mr. Gaskill and find out what it all meant, but they were thankful to him for bringing it to their notice at the earliest possible moment. There could be no controversy about getting larger thermal yields from given pieces of plant; there were smaller points on which they still lacked information, and they should receive due consideration. One small point was that the air passing round the bottom of the retort and cooling the coke was receiving heat which was necessary for the process of carbonisation, and there was a very direct return of heat if one used manufactured gas for the same purpose.

Mr. Gaskill had mentioned that the larger the volume of carrier gas admitted the greater was the increase in throughput. He wondered whether the heat was transferred from the coke to the coal, or whether there was not some advantage gained by the transfer of heat from the retort wall into the centre of the charge. Some time ago in that room the question was asked whether the gas industry should not be doing something about finding new methods of using the different types of coal likely to be made available in the future. There was an answer to that question in the present paper. In the course of the paper the dates 1862, 1917, and 1930 had been mentioned—evidence, he thought, of the fact that ideas concerning improved carbonising methods were there, and they only needed an economic urge to bring them into being. Great promise for the future was to be derived from the excellent results which had followed from the application of well known principles, and he would like to believe that a great many more problems which loomed largely in the future would be thus easily solved.

Static Verticals

Mr. J. R. Fairman (Southampton) said their reactions at Southampton when they learnt of the use of 'carrier' gas in the experiments in the North Western area was that they wished they had continuous vertical retort plant of their own. They had two Woodall-Duckham static vertical carbonising plants. The coke from the carbonising section was lowered intermittently into a cooling chamber below the retort. In the cooling chamber it was steamed until it was cold and then extracted, and then another charge of coal was placed on the top. It was an intermittent process which had certain features like those of the continuous vertical retort. They were going to see if they could apply the principles of gas injection cooling to their static vertical retorts, because there would appear to be some similarity, in that there was coke to be cooled, and heat to be passed into the coal chamber.

He wondered whether the question of the application of the process to static verticals had been considered, and whether any consideration had been given to the effect likely to be obtained from using coal gas instead of steam. They felt there might be limits to the use of gas for cooling in a static charge. Pressure conditions did not seem to be troublesome at present. The coke was about 950°C. when it was lowered into the cooling chamber, and it was cooled to about 250°C. by steam at the end of the period. Carbonising Durham run of mine coals, the gas which they they made in their static verticals was 485 B.Th.U.

Mr. C. H. Townsend (South Eastern) said the greatest attraction of the process described by Mr. Gaskill was its greater elasticity. In order to know the extent of that elasticity it would be of interest to know what the results would be when making a gas of 500 B.Th.U. He presumed the throughput could be further increased by using higher combustion temperatures, in regard to which he enquired how the average of 1,300°C. mentioned by Mr. Gaskill was arrived at.

Mr. Gaskill's Reply

Mr. Gaskill, in a general reply to the discussion, agreed with Mr. Clark that one of the apparent advantages of the process described would be that of working at lower temperatures particularly when it was a question of a higher calorific value gas. That, as he had indicated in his introduction, was at present being experimented with, and under those conditions the use of coal gas would be more effective, since there would be less risk of degradation. The effect of the process on the coke still remained to be seen, and whether the coke resulting from the lower temperature carbonisation would render the process less economic.

Mr. Dunning and Mr. Hirst had touched on a sore point concerning the man who made the gas and the man who sold it, and it was a field of argument into which he hesitated to enter. When using water gas as the carrier gas he thought Mr. Dunning indicated that there would be very little effect on the gas, and so far as he could see the properties of the gas in those circumstances would be very similar. The process could be considered flexible to the extent that one could use water gas to get a high output, and when a lower output was required one could revert to steaming. That could be done without much upsetting the quality of the gas.

The question of scurf formation had been raised by Mr. A. A. H. Clark. When using a mixture of coal gas he thought there would be a tendency to increased scurf, but they had found it to be of somewhat different nature. It was not the usual hard scurf, but much lighter and more flocculent. When using water gas he thought the indications so far as they had been able to find them were that there was less scurf formation. He said that with some reservation, because it was extremely difficult to assess the amount of scurf on the retorts. In answer to Mr. McKean he pointed out that the process had to be examined in each particular instance. Obviously if they had a continuous vertical retort plant producing gas at 450 B.Th.U. and a carburetted water gas plant they would lose the peak load value of the C.W.G. plant, and in such circumstances the process might not necessarily be advantageous.

Coke Reactivity

Regarding Mr. Grant's question on the reactivity of the coke, in their preliminary examination of the process they hoped there would be some effect on the reactivity and less tendency for ash deposition on the surface. Actually they had found that the effect on the reactivity of the coke was negligible. Reactivity was ascertained by the C.A.B. test and the reason why the figures were not included in the report was because they were negligible. Mr. Newman had mentioned abradability of the coke. If they used water gas as the carrier gas when making a 450 gas the total amount of coke was practically the same as with the ordinary steaming process. If they doubled the output of existing plant then obviously they must increase the coke handling plant to deal with it.

It had been pointed out by Mr. Nicholls that it was becoming more difficult to get suitable coals. This process would help them to use smaller coals, and they could maintain and even increase their normal output with this process. So far as the effect on the quality of the coke was concerned they had very little evidence on which to base a claim that the process would give any better value. It would lend itself to the use of blended coals, but that was entering into another subject. They could use suitably blended coals and possibly gain advantages in coke quality while at the same time maintaining the normal throughput of the plant.

He agreed with Mr. Wiseman that it was a wrong attitude to regard coke as a by-product. The same care should be devoted to coke as to gas, and that was an attitude which was gaining ground in the gas industry. In reply to Mr. Fairman, they had given some thought to the application of the process to static verticals, but there had been no actual experiments carried out. On the face of it, it would appear that the heat in the coke as discharged from the bottom of the retort into the cooling chamber should be used to heat the carrier gas which went up the retort to accelerate carbonisation. He saw no reason why that should not be done in the case of static verticals.

Importance of Purging

At the same time he would remind Mr. Fairman of the necessity for purging. Steaming could be used with impunity but it would be as well to take care to ensure that the purging arrangements were ample. He was going to have to purge a rather large volume in the chamber as compared with the amount in continuous vertical retorts.

A question about the increase obtained when making gas of 500 B.Th.U. had been raised by Mr. Townsend. That would depend on the coals being carbonised. The increase would be in the neighbourhood of 25% to 30% over the normal throughput. With regard to average combustion temperatures the retort in question was normally operated at 1,300°C., based on the average of five combustion chambers.

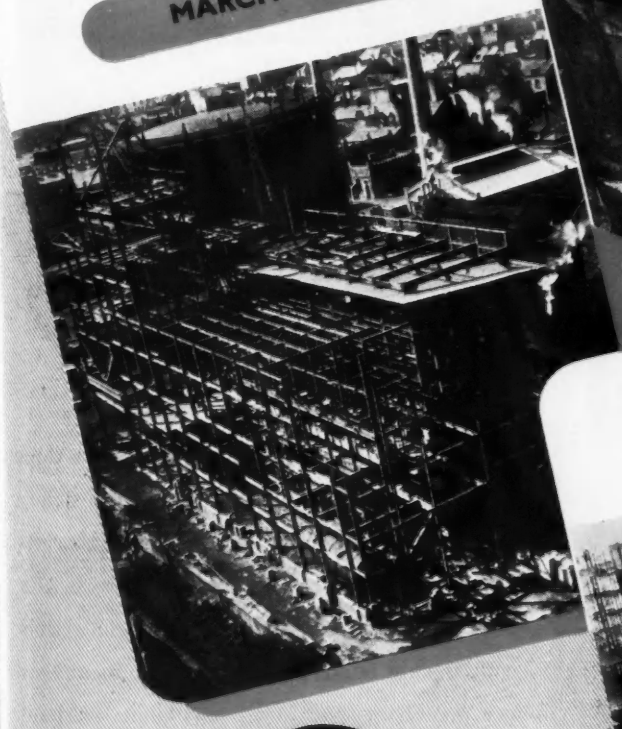
Dr. F. J. Eaton (North Thames) proposed a vote of thanks to Mr. Gaskill, who briefly responded.

PROGRESS . . .

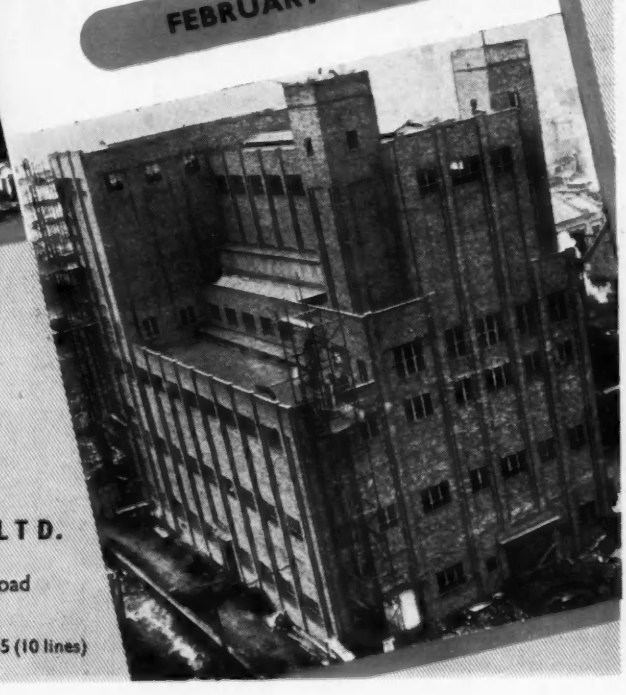
The New Installation of W-D Continuous Vertical Retorts soon to be in operation at the St. Helier Works of the Jersey Gas Light Company Limited. The gasmaking capacity will be over 3,000,000 cu. ft. per day.

SEPTEMBER 1952

MARCH 1953



FEBRUARY 1954



W-D

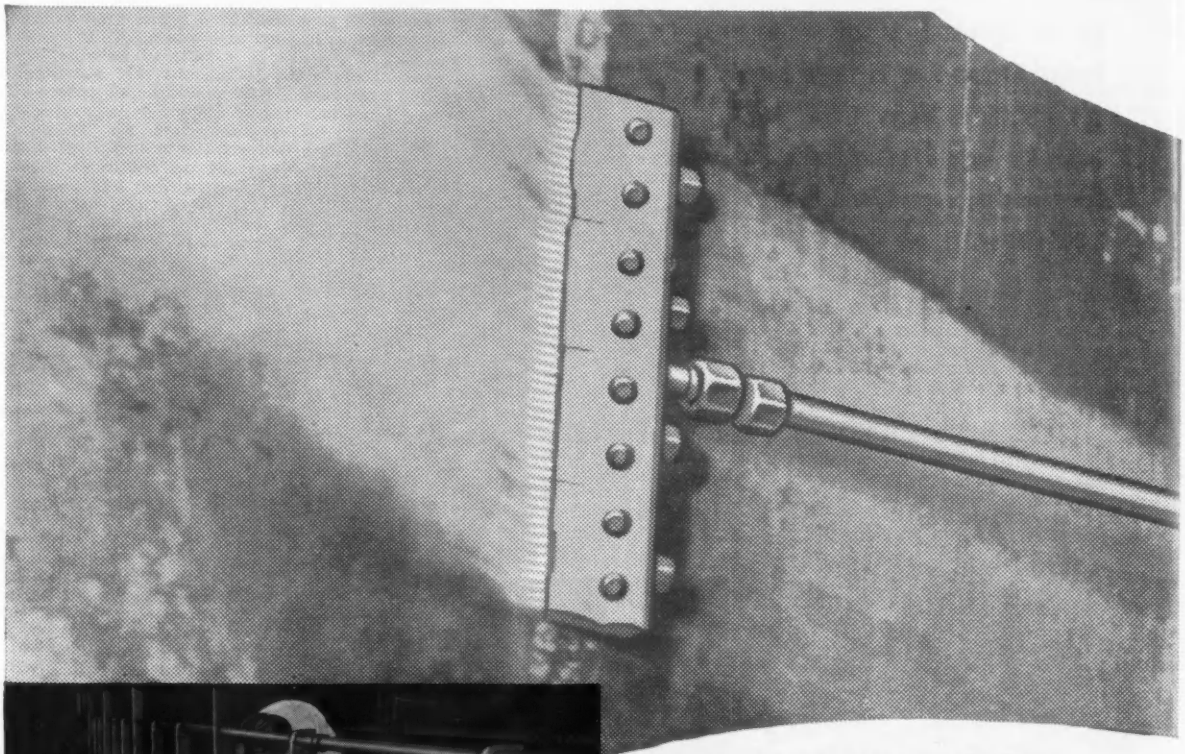
WOODALL-DUCKHAM

CONSTRUCTION COMPANY LTD.

Woodall-Duckham House, 63-77 Brompton Road
London, S.W.3

Grams: Retortical (Southkens) London. Phone: KENsington 6355 (10 lines)

B.O.C Flame Cleaning strips



Flame Cleaning structural steelwork at a factory where corrosive atmosphere has destroyed the paint coat and caused heavy rusting of the steel.

The B.O.C Flame Cleaning process does the work fast, and does it well. With a steady sweep of the Flame Brush the toughest scale falls clear, and rust becomes harmless oxide dust in a few seconds. On the clean, warm surface thus provided, paint bonds perfectly—which means far longer protection and a big saving in overhaul costs.

Flaws in the metal surface are revealed and can be treated, thus removing all risk of premature corrosion.

Perhaps B.O.C Flame Cleaning can cut maintenance costs in your business, too. Write for a copy of B.O.C Technical Information Bulletin No. II — it gives all the facts.

scale fast...

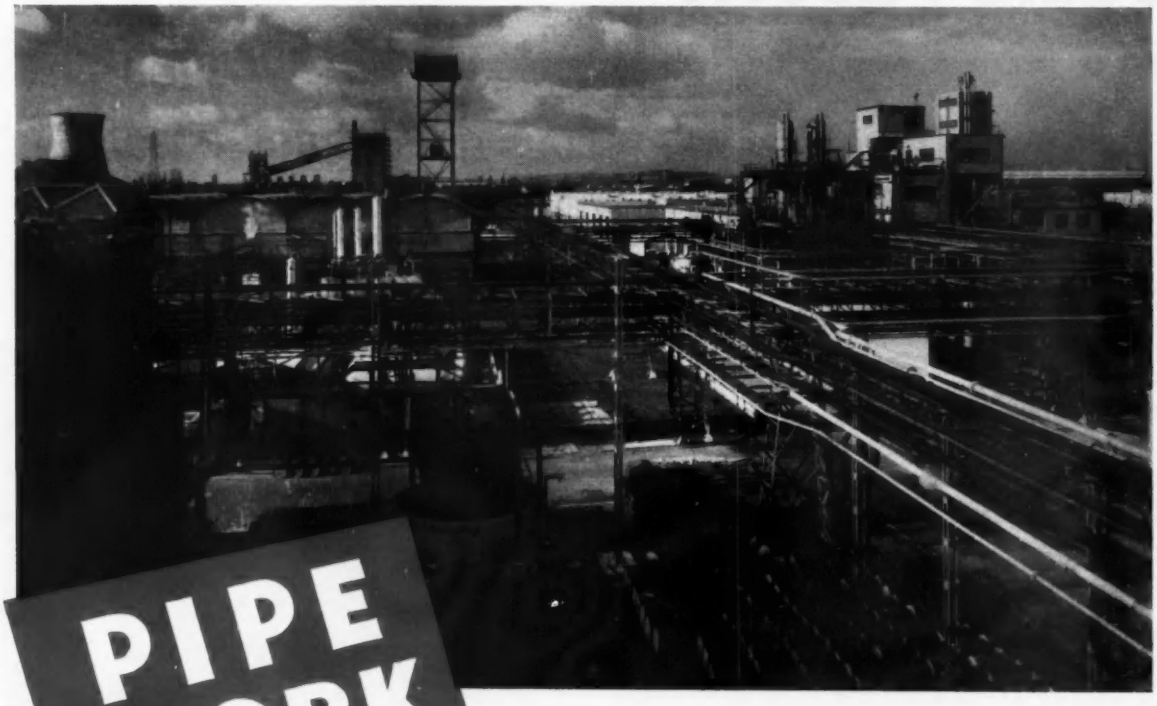
BIG AREAS AND TRICKY CORNERS are thoroughly cleaned—a perfect paint-bonding surface left

Shown above and below are detail photographs of the work before and after Flame Cleaning. Note the clean, smooth surface—on which paint bonds perfectly.

BOC **THE BRITISH OXYGEN CO LTD**

LONDON AND BRANCHES

The Arteries of a Chemical Plant ....



PIPE WORK

installed by PRESS

SPECIALISTS WITH OVER 40 YEARS' SERVICE IN INDUSTRY

Whatever the Specification and whatever the Service, Diameter, Length, Pressure, Temperature, Height or Depth, William Press & Son undertake Pipework installations anywhere. Expert and personal attention given immediately on request.

WILLIAM PRESS & SON LTD. MAINLAYING

WILLIAM PRESS & SON LTD.

22, *QUEEN ANNE'S GATE, WESTMINSTER, S.W.1*
Telephone: WHItehall 1752-3 & 2961
Telegrams: Unwater, Parl, London

WILLOUGHBY LANE, TOTTENHAM, N.17
Telephone: TOTtenham 3050 (12 lines)
Telegrams: Unwater, Southtot, London

Scottish Association of Gas Managers

Presidential Address

PRESENTED AT THE SPRING MEETING OF THE ASSOCIATION AT DUNBLANE ON APRIL 9, 1954

By ATHOL W. BROWN, M.Inst.Gas E.

I was privileged to serve you in the capacity of Hon. Secretary and Treasurer. In that office, one develops a recognition of the value of the Association, an appreciation of the qualities of leadership shown by Past Presidents, and a realisation of the fundamental necessity to refresh or renew the bond of fellowship between men with common interests. I am, therefore, conscious of the duties of the President and thank you most sincerely for your confidence.

Since the change in ownership of the gas industry, our Association has come to play an even more vital part in providing facilities, at regular intervals, for the formal and informal interchange of opinions and experiences of members through the Scottish area. The value of those meetings to members and to the Gas Board should never be underestimated. They might be extended with advantage, at little additional expense, to include private sessions for the definition of Gas Board policy, presentation and discussion of technical subjects having particular reference to projects and problems in Scotland, and current matters requiring particular emphasis.

To-day, we face the burden of inflated capital costs, the spiral of increases in cost of coal, materials, and labour. The industry, beset by rising expenditure which it is powerless to control, must effect economies by still further increasing the efficiency of its technical and administrative operations to retain competitive prices in the fuel markets. Competition for business in both the domestic and the industrial fields becomes increasingly strong and demands the immediate development of a well-supported progressive sales policy to maintain a steady advance in gas sales.

Those are two of our maior problems, but they were not unknown in the past. Then, they were successfully overcome. To-day, with the advantages which have been gained by research, the greater technical resources at our hand, and the strength of an industry under unified control, there should be no doubt that our industry will maintain its steady advance.

Historical

This year marks the bi-centenary of the birth of William Murdoch who was born at Bello Mill in the village of Lugar, Ayrshire, on August 21. 1754. One of his biographers states that William Murdoch was a man of indomitable energy and possibly the greatest mechanically inventive genius that Scotland has produced. He was a man excessively modest and invariably kept himself in the background.

R. Angus Downie said this of him:—'The study of his life leaves us with the impression of a man of great physical strength and unsurpassed ingenuity devoting for more than 50 years the whole of his powers to the solution of mechanical problems, careless of reward or reputation and serving only his employers and the tremendous urge to work that was within him.' We remember William Murdoch as the inventor of gas, but we would also do well to remember the great qualities of his character.

In 1792 Murdoch lighted the office in his house at Redruth with coal gas and the first public exhibition of gas lighting was made in 1802 at the Soho foundry of Boulton and Watt, his employers. It is interesting to note from a description by William Matthews of the exhibition of gas lights at Soho works that in the Press reports no mention was made of the use of coal gas. Too often has it been necessary to make the same criticism throughout the intervening years of lack of publicity concerning the contribution of the gas industry to the social and economic welfare of the country.

William Murdoch did not actively pursue the development of coal gas as a commercial venture, and consequently his name must always be associated with Frederick Albert Winsor and Samuel Clegg. Winsor founded the first gas company, the Chartered Gas Light and Coke Company, in 1812, and to Samuel Clegg, to whom we allot the title 'the first gas engineer,' must be given the credit for the initial practical development of gas production and purification.

At the inception of the gas industry there was no thought that gas would be used for any purpose other than to produce light, and this purpose persisted for more than a century. There is little spectacular in the development of gas lighting; rather is it marked by three well defined advances—the introduction of the batswing and fishtail burners; the improved Argand burner making use of an air regulator; and the introduction of the incandescent mantle. This coincided with the introduction of the electric bulb which heralded the era of competition.

Utilisation of gaseous fuel was introduced in the latter half of the nineteenth century. One reads that gas undertakings, by 1882, had commenced hiring cookers and by 1885 had introduced gas cooking competitions to educate the public in a further use of gas. Historians also record that in 1885 there was a movement, in connection with a Bill before Parliament for the re-housing of the working classes, to extend the use of gas in the new dwellings to be erected as a means of combating the smoke nuisance. The elimination of solid fuel for cooking purposes has now been largely achieved; but to-day, 70 years later, there is even greater necessity to introduce national legislation requiring a reduction in the use of solid fuel for domestic space heating, to lower the cost and eliminate the inconvenience of atmospheric pollution in this modern age. The use of gas as the most general means of cooking did not begin until some way was found to extend this service to the wage-earning classes. In 1888-89 the first prepayment meters were installed and the rapid adoption of this system throughout the gas industry was a means of bringing gaseous fuel to the great majority of houses.

While gas was used for space heating, water heating, and industrial purposes in the latter part of the nineteenth century, it may be said that real development in those fields has taken place only since the commencement of this century. We are all familiar with the modern appliances available for use in those fields and recognise the work of the scientists in bringing them to a high standard of perfection. Their efficiency of utilisation and æsthetic appearance bear favourable comparison with the appliances produced by our competitors.

Development

From the efforts of these pioneers concentrating primarily on the production of a lighting agent, there has developed this great industry which has transferred its activities to its natural function of supplying heat for cooking, space heating, water heating, and industrial purposes. The rate and extent of increase in size of the industry can best be indicated, simply by enumerating the amount of gas sold and number of consumers supplied.

Year	Gas Sold in Mill. Cu.Ft.	Number of Meters, Mill.
1885	76,005	2
1920	235,403	7½
1945	389,850	11¼
1946	429,250	11¼
1948	465,137	11⅜
1950	494,860	12
1951	518,472	12¼

Since 1938 the industrial demand for gas has increased by over 70% and this field is, up to this date, far from

saturated provided gas can be supplied at a competitive price. During the 66 years 1885 to 1951 the amount of gas sold has increased by approximately 580%, and the number of consumers by 500%.

In addition to gas made, the gas industry, during 1953, produced, from 27½ mill. tons of coal, 15 mill. tons of smokeless fuel, 2 mill. tons tar, 160,000 tons of ammoniacal liquor, and 28 mill. gal. of crude benzole—derivatives of coal which form a home source of supply of raw materials for the chemical industry.

National Fuel Policy

The economic necessity and benefits of a national fuel policy have been advocated by eminent fuel technologists over the past 40 years. Committees have been appointed by Governments to advise on policy for the best use of the nation's fuel and power resources, the most recent, of course, being the Ridley Committee. The advocates of such a policy saw no acceptance of their proposals on a national scale and the reports resulting from the enquiries by Government committees have so far produced no material change in the existing structure of the fuel industries nor have they influenced any Government to link the major fuel industries to obtain some unification of policy. Coal, gas, and electricity go their respective ways, each competing against the other with little regard for the conservation of the nation's fuel resources.

In the past it was not surprising that the major fuel industries, under private ownership, and each within itself divided into a considerable number of individual units with no governing national policy, should adopt policies suitable for their particular spheres of influence and promotion of their own interests. With the advent of nationalisation and the welding of each into national units, under common ownership, one would have anticipated that a major and essential advantage of the change would have been recognised, and the opportunity taken to define and apply a unified fuel policy in the national interest. The political strife associated with nationalisation, at its inception, did not provide an atmosphere conducive to constructive thought on the national benefits which could be attained by a common fuel policy, but there has since elapsed an adequate period for reflection.

Even now the Government and leaders of the respective industries have shown no evidence that they are considering the adoption of such a plan. The evidence submitted to the Ridley Committee by the respective fuel and power industries defines in bold relief the almost complete absence of co-ordination, and the determination of each to propagate expansion with little regard to the economic and coal resources of the nation. In this respect strongest criticism may be levelled at the Electricity Authority.

In recent years there has been an increasing number of technologists within, but more largely outside, the industry who have re-emphasised the immediate need of a national fuel policy, and submitted recommendations. Those individuals are well qualified to assess the critical value of coal in the financial structure of the country, and one of the features common to those recommendations is that the gas industry must play a key part in any scheme.

I quote the words of Mr. Gerald Nabarro, M.P.:—'Gas is essentially a balancing factor between coal and electricity in our national fuel and power economy. The gas industry must carry an increasing responsibility for the domestic heat services of the nation, leaving electricity to its proper field of power and lighting. The process must be motivated by legislation and Government declaration and direction as rapidly as possible. Thus will large coal economies be effected. In addition gas, as hitherto, must be prepared at all times to meet the diverse and increasing demands of British industry, especially in its manifold specialised applications.' Mr. Nabarro advocates the appointment of a 'National Fuel Trust' to control and secure co-ordination between the National Coal Board, the Gas Council and the British Electricity Authority. This, he says, would achieve a reduction or at least more productive allocation of capital expenditure; a more efficient utilisation of the nation's fuel resources; improve the economic position of the country by releasing raw coal for export; and extend the use of coke as a domestic smokeless fuel as recommended in the Simon Report of 1946.

A specialist team on conservation of heat, fuel, and energy calls for a halt in the present 'unheedful drift' in the use of our coal resources, and maintains that the nationalised fuel industries are focal points for improvement in fuel utilisation. The report sets out recommendations, one of which is that the Government should make an early declaration on the broad policy it intends to follow in regard to fuel and power, and it should enact legislation to create a permanent and non-political Fuel and Power Board to undertake the direction of the three nationalised industries.

Sir Oliver Lyle has also advocated the setting-up of a non-political permanent Fuel and Power Board for the direction of the fuel industries. In its memorandum to the Ridley Committee, the Gas Council contended that it would be in the interests of the better use of fuel if it were to increase the amount of coal which it carbonises annually to double the present quantity. At the same time it pointed out that the industry was concerned that development should be balanced as between the various types of load for which gas and coke respectively are used.

One suspects that there may exist powerful and important interests which do not favour the adoption of a national fuel policy—an immediate consequence of which would be the rapid expansion of the gas industry. However, support for such a policy has gained much strength and more prominence in recent years. I believe that the benefits which would accrue to the nation by the adoption of a national fuel policy will yet be recognised.

Smoke Abatement

Air pollution arising from the combustion of fuels has recently been more prominent in the minds of the general public, and the Government appointed a Committee, 'to examine the nature, causes, and effects of air pollution, and the efficacy of present preventive measures; to consider what further preventive measures are practicable; and to make recommendations.' The interim report of the Committee on Air Pollution has been presented to Parliament.

Air pollution is caused by the presence in the atmosphere of solid particles of soot, fine dust, minute liquid droplets of tar and oil, and oxides of sulphur. The Committee has described the effects of air pollution on public health, the material damage to buildings, corrosive effect on steel structures, and the deleterious effect on vegetation. The economic cost to the nation is roughly estimated at £100 to £150 mill. per annum. A major cost of pollution is the fuel wasted in producing smoke and unburnt gases through incomplete combustion, amounting to 5 to 10 mill. tons a year. The Table, taken from the interim report, gives the main uses of solid fuel and estimates of pollutants discharged from such uses in Great Britain in 1952.

Type and use of fuel	Quantity of fuel (mill. tons per annum)	'Pollutants' discharged (mill. tons per annum)		
		Smoke	Grit	Sulphur dioxide
Raw Coal:				
For domestic use	36.9	0.9	0.1	0.9
For electricity works	35.7	small	0.2	1.0
For railways	13.9	0.4	0.1	0.4
For industrial and miscellaneous uses*	65.1	0.8	0.2	1.8
For coke ovens	25.2	small	small	0.1
For gasworks	27.9	small	small	0.1
TOTAL	204.7			
Total consumption of coke other than gasworks	26.1	*Nil*	small	0.7
	Total	2.1	0.6	5.0

*Includes general industry, collieries, patent fuel works, non-industrial establishments, waterworks, and the Service Departments.

The Table illustrates clearly the considerable improvement the gas industry could effect in the atmospheric conditions above our cities if gas and smokeless fuel replaced the raw coal in domestic fireplaces and to some extent in industry. The Committee recognises that the gas

industry could fulfil this desired function but notes that, under present conditions, it cannot meet the demand or compete with raw coal on a cost basis.

Here is the opportunity to realise in part the elimination of two national problems, smoke nuisance and wasting of the vital raw material, coal. The solution lies in the formation of a national fuel policy which would provide for correlated fuel prices.

Competition

The price at which gas can be sold is largely determined by the cost price of coal and is therefore influenced by such price structure as may be fixed by the National Coal Board, a competitor in the field of domestic space heating. The Gas Council has stated that the price of coal to the gas industry has been increased 3.3 times over the price paid in 1938, whereas, over the same period the price of coal to domestic consumers has been increased by only 2¼ times. The rising cost of coal production during the post-war years has been unduly weighted against the gas industry, thereby giving a price advantage to solid fuel in the domestic field.

The electrical industry has always enjoyed much greater freedom in fixing charges under legislation and it has not failed to utilise this factor to the maximum advantage. It has been shown that the average price of all electricity sold was not less than the average price of electricity sold to domestic users under two-part tariff agreements. Large commercial and industrial consumers with good load factors do not appear to be granted the preferential rates which they are entitled to expect in consideration of the size and distribution of load. Rather they are required to subsidise cooking and space heating in domestic premises. This is one more instance of policy framed to attract business irrespective of capital installation cost per unit of consumption, effect on peak load, or maximum utilisation of raw coal.

In recent years we all must have experienced occasions when we had reason to suspect the validity of sales points used by the Electrical Authority in approaching prospective consumers. Such inaccuracies as we have experienced in our daily work have now been brought to light in a rather more prominent place—the House of Commons—where reference was recently made to a speaker's handbook entitled 'Facts about Fuel' issued by the British Electrical Development Association. Mr. Alfred Robens, M.P., referred to an extract, used in the handbook, from the evidence submitted by the National Coal Board to the Ridley Committee. The implication of this extract, by its removal from the context, had been changed completely—and, of course, to the disadvantage of gas. Mr. Robens described the action as shocking. Mr. Gerald Nabarro described the publication as a scurrilous pamphlet. The Parliamentary Secretary to the Ministry, Mr. Joynson Hicks, said that attention had been called to the pamphlet. 'I have seen it,' he said, 'and in my view it is not composed in accordance with the lines of the arrangement at which we arrived. I am accordingly having enquiries made into the matter.'

At times it has appeared to me that the methods of electrical salesmen are born of desperation. If one may judge from the publication referred to, the methods are dictated by the highest authority.

On the other hand, the approach by the gas industry to consumers always has been, and remains, conservative and frank. Let us hope that the justifiable reprimand to the B.E.D.A. for its recent effort will induce a greater degree of caution and respect for accuracy.

The Institution of Gas Engineers

This Association remains to date only affiliated to the Institution and did not accept the invitation to become a district section of the Institution. The reasons for this step were peculiar to the Scottish Association and in no way was it intended that we should divorce ourselves from the parent body. It may be that within the next few years the changing conditions within our area will cause your Council to reconsider its previous decision.

In the sphere of education the Institution is particularly active and during the past year the revised Education Scheme has been brought into operation and in course of time the industry will benefit from the improved standard of the qualification. A further development in the educational field was the experimental Residential Course in Management and allied subjects held at Brooklands County Technical College over a period of seven weeks. It is hoped that the success of this initial course will ensure its adoption in future years. The selected students, and consequently the industry, cannot fail to reflect the benefits of the method of instruction and standard of lectures by acknowledged authorities on a wide range of subjects.

Banff

Extensive damage was suffered by the Banff district undertaking during the storm on January 31, 1953. It provided a refreshing experience—complete freedom of action. Instructions were brief and pointed: 'Get the works back into production with the minimum delay. Take whatever action you consider necessary.' The spectacle of destruction witnessed on arrival that Sunday morning was incredible and must have been unique. All plant and connections from the outlet from retort house to the inlet to the oxide purifiers were rendered unfit for further use, and by the collapse of the retaining sea wall had been deposited 12 ft. below yard level and actually below the level of high tide. The town holder was partly undermined by tidal action and the blue water gas relief holder exposed over 50% of its circumference to the action of the tides. The work of preparing foundations, re-siting, erecting and re-connecting replacement plant, obtained from the Perth Group and Divisional headquarters at Aberdeen, was all completed by Board staff and labour in nine days. After purging of town mains the gas supply to the district was resumed on February 10, 10 days after the gas supply had been cut off the town.

To me the most satisfying features of this experience were the resource, energy, and ability of the young team of professional engineers, and the co-operation, interest, and support of all employees of the Board engaged on the work. No decision, once made, was altered. The layout plan of plant and connections drawn up without proper equipment was without an error. The progress schedule was adhered to by extension of the working day to the limit of physical endurance. The target for completion of the work set early in the operations was exceeded by only one day, and the men, although exposed to severe weather conditions, worked long hours with splendid spirit. This experience did much to convince me that the younger generation is not lacking in essential qualities and interest in their work—provided each individual knows the general plan and his particular sphere in the operations. I take this opportunity to express my thanks and appreciation to all those who formed that splendid team which undertook the restoration of Banff gasworks.

During a visit to the site, Mr. James Stuart, Secretary of State for Scotland, paid high tribute to the Board's officials engaged on the work. The following is an extract from the editorial comments in the Aberdeen *Press and Journal* of February 17, 1953: 'When the Secretary of State for Scotland was in Banff on Saturday he praised the alacrity with which the town gas supply had been restored after the flooding of the works. It is right that this should not go unnoticed. The replacement of the service was done with marked speed and efficiency. In this instance, at least, the nationalised industry has made good use of resources which the local authority would not have been able to command.'

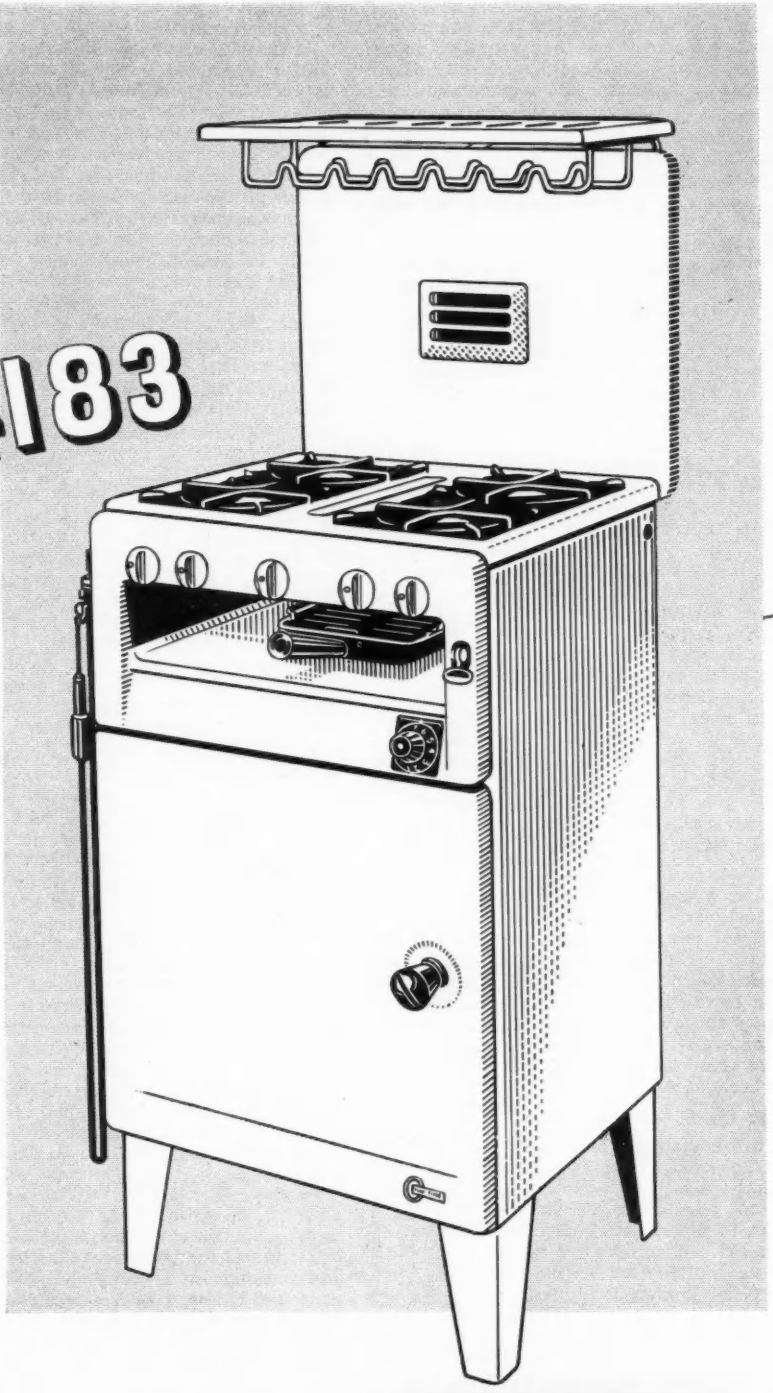
Aspects of Nationalisation

One is now better able to appreciate the task with which the Board was faced at vesting date. To appoint executive personnel, reorganise technical appointments, set up the basis of an organisation within a matter of weeks, and to be confronted with the transfer and control of almost 200 gas undertakings was a duty of first magnitude. The change-over in ownership and control of the industry was effected with remarkable smoothness and with little or no inconvenience to the public which the industry serves. Members of the Board, I believe, would readily

ANOTHER STEP FORWARD

A worthy successor to the S.4180, of which over three quarters of a million have been sold in 5 years, the S.4183 has a much improved appearance and many desirable refinements. The more notable of them are full width oven door, forward venting oven flue, attractive hotplate and platerack design, and an entirely new external finish of textured vitreous enamel.

S.4183



The **NEW WORLD S.4183,** *like its predecessor, offers the keenest value for money in the low-priced cooker market.*

NEW WORLD

PRODUCT OF Radiation Ltd.

RADIATION GROUP SALES LTD., 7 STRATFORD PLACE, LONDON, W.1 TELEPHONE: MAYFAIR 6462

acknowledge that the engineers and managers of the former local authority and company undertakings contributed much towards this achievement; and they must have recognised the loyalty and high sense of public duty which guided those officials at that time of transformation.

We can easily recall the difficulties and doubts during the first few years of nationalisation; but during this period senior executives, accountants, and head office staff appointed under pressure of time had to combine in forming a new organisation. It was not surprising that engineers and managers who had known relative freedom of action and who had been largely responsible for the direction and policy of their respective undertakings prior to vesting date became irritated by repeated requests for information from those new officials, the influx of questionnaires, and the unfamiliar barriers to freedom of action. That phase has now largely passed. The memory of it should not cloud our vision, diminish our loyalty, or reduce our sense of public responsibility. As officials of the Board it is our duty and obligation to give service to the extent of our abilities.

During the five years which have elapsed since nationalisation of the industry much has been achieved, within the limits imposed by legislation and the availability of materials, in modernising and extending production and distribution plant. The report of the Scottish Gas Board for year 1952-53 shows that integration schemes have resulted in the closing-down of 19 gasworks as production units. A further 16 works are scheduled for closing-down. This is a trend which must continue where the economics of distribution enable gas production to be confined to larger and more efficient units. Integration schemes have also been completed in suitable areas to permit interchange of gas supplies to meet varying gas loads in adjoining districts, so obviating or restricting the extension of capital plant with consequent savings in capital expenditure. Integration on this scale could never have materialised in the days of private and municipal ownership when personal interest and parochial pride invariably raised barriers to any proposals for integration between neighbouring districts.

Several factors have contributed to an increased efficiency of gas production. Among those may be numbered the closing-down of some of the smaller manufacturing units. Provision of qualified technical assistants in the smaller works, overtaking of arrears of plant maintenance, and modernisation of existing plant. In the past, lack of financial resources may have hampered the extension and replacement of inadequate distribution systems. While much work still remains to be done in this field, a great deal has already been accomplished.

The Question of Personnel

I do not wish to question the ideals of nationalisation, and I recognise the material improvement in technical efficiency which has already been achieved; but the effect on personnel cannot be viewed with equal optimism. I refer, in particular, to professional officials. Members of boards of nationalised industries have in this a problem which will not be easily resolved, as the rather rigid and tiered structure of the organisation permits only limited scope for individual initiative at all levels, and the promising members of staff may very easily lack opportunity and become discouraged. There is also the possibility of apprehension, through lack of contact, that an individual's work is not appreciated or communicated to the proper level. Policy and instructions on major matters evolve only from the area boards, and any doubts arising in the minds of staff on the interpretation of those instructions will invariably give rise to inertia, delay, and inefficency.

By virtue of the power invested in them, there is demanded of the members of area boards, and senior executives a very high standard of administration and a broad impartial outlook. Policy must be positively defined and issued with clarity and promptness to the responsible officials, who in turn must disperse that policy to junior officials with equal confidence and clearness. To give of his best, every official must know exactly what is expected of him, how his functions fit into the general scheme, and be confident that the terms of his instructions are complete and up-to-date.

In the gas industry technical qualifications do not always permit personnel to obtain equivalent positions in other branches of engineering. Thus officials now find themselves confined to the industry and largely under the jurisdiction of a single authority. The Gas Council and area boards to an even greater extent than the other nationalised industries have, therefore, been confronted with a personnel problem in a most acute form. This is a further reason for particular attention being given to the problem of personal relations so to retain the team spirit so characteristic of our industry in the past. A secondary but equally important aspect is that recruitment of personnel into the industry will be much less difficult, if there is already in that industry a contented personnel who will reflect those symptoms in keenness for their jobs.

The Scottish Gas Board, at vesting date, was composed of almost 200 gas undertakings scattered over the length and breadth of Scotland. No other area board had to deal with so many undertakings or face the loss of time and energy in covering the distances involved in the Scottish area. Those factors, combined with the work involved in the change-over and subsequent period of formation, have put too great a tax on the time of members of the Board, so restricting their opportunities to give attention to matters other than those demanding immediate attention, and to maintain contact with district officials. This time factor may also be responsible, on occasion, for an apparent lack of liaison between departments at head office. Now that major problems of organisation have been dealt with, members of the Board may, in future, have more time to consider means of developing closer liaison at district level. I am confident that this would contribute to increased efficiency.

In making those remarks, I give no thought to the dissatisfied official whose dissatisfaction is only a cloak to cover his personal incompetence and sense of inferiority. I do so because I feel that in the ranks of our best officials there is a degree of uncertainty and doubt which could be removed by closer liaison.

There have now been formed definite strata in levels of appointments and there is always the danger that an official, at whatever level he may find himself, uses unduly the authority of position to maintain his status with subordinates. Experience has shown that the most efficient official is one who has earned respect by his capacity, his proved ability, and his confidence in himself to discuss freely with those under him problems and actions for which they share a joint responsibility. We are members of a team with varying degrees of responsibility. Interest in one's job, however, is not necessarily directly proportionally to responsibility. We should, therefore, be prepared to listen and discuss and, if desirable, adopt the suggestions of more junior officials.

Gas Production—Plant Developments

Dr. R. H. Griffith and Dr. F. J. Dent, at the research meeting of the Institution of Gas Engineers, last November, outlined the work and aims of research at the London and Birmingham Stations of the Gas Council. In dealing with the activities at the Birmingham Research Station, Dr. Dent mentioned the urgency of investigating the utilisation of weakly caking coals for gas manufacture, in view of the increasing price anxiety about coal supplies and some undoubted deterioration in the coal qualities. He said:—'The urgency appeared all the greater when seeing plants being erected for operation over the next 40 years and when statements were being made that in some localities coal gas was little if any cheaper than carburetted water gas made from prepared fuel coke and a relatively high priced material such as gas oil.'

There is reason for optimistic expectation of the emergence of large scale plants in the near future as a result of research work to relieve partially the rising cost of coal and its availability.

In recent years there has been a notable trend in the development of complete gasification plant. The Lurgi process gasifies coal at a pressure of about 20 atm. using steam and oxygen in place of air to avoid the dilution of

fuel gas with nitrogen. This process, although originally designed for brown coal, has shown by recent trials that certain British coals 800 and 900 react in a similar way and gasification experiments with the 900 type coal (approximately 25% ash) from Bogside, West Fife, recently carried out proved to be most satisfactory.

A few weeks ago there was published the results of investigations, carried out by officials of the North Western Gas Board, to determine the practicability of increasing the productivity of existing carbonising plant, so as to avoid additional capital expenditure on new plant, to reduce overhead charges, and to increase plant flexibility. The development of the 'Rochdale' process, as it has been named, makes possible a considerable acceleration of the carbonisation process in continuous vertical retorts by the injection of gas instead of steam. The results of the practical tests indicate that the initial objectives can be attained, and in addition the process might make possible the greater use of coals with lower coking properties. This development is of particular interest to the Scottish area where, as in the North Western area, approximately 70% of the coal gas made is produced in continuous vertical retorts. Also, the process would appear to be suitable for Scottish coals and might produce a more satisfactory coke both in size and quality.

There is also the decision of the Gas Council to spend £1 mill., spread over a period of five years, in exploration of natural gas resources in Great Britain. If such resources are found one can visualise, as in the United States, a rapid development of the gas industry.

There is much reason for optimism and gratification for the manner in which the Gas Council and the area boards are carrying out active investigation and conducting large-scale experiments to evolve new types of carbonisation plant with the objectives of utilising weakly-coking coals, reducing production and capital costs, and increasing the flexibility of carbonising units.

Appliance Sales

During the past year the ban on promotional publicity for gas appliances has been removed, and more recently gas water heaters have been exempted from the provisions of the Hire Purchase (Control) Order. With the removal of those two obstacles to sales the Gas Council and area boards embarked on a national publicity campaign, enabling the salesman, after many years of inactivity, again to come into his own. The increased tempo of the sales drive during these past months has resulted in a very satisfactory increase in appliance sales.

In Scotland arrangements have been made with the Federation of Plumbers and Domestic Engineers and the National Federation of Ironmongers for the provision of display facilities for gas appliances in members' premises. This will permit a considerable increase in the number of display points for gas appliances throughout the various districts and doubtless will contribute to an increase in sales. The introduction of the new gas tariffs in Scotland using the block system also provides a sales point in attracting additional gas consumption in certain districts. In some of the larger districts sales staffs have been augmented with very positive results, but to obtain the maximum benefit from national publicity there is still need for a considerable expansion of sales staffs which must also cover the smaller district undertakings.

There is a need in Scotland for a full-time specialist in sales and publicity work, responsible for the direction of policy, all publicity, showroom layouts, general arrangement, and direction of exhibitions, design and distribution of display units for Gas Board and traders' showrooms, and the collection and issue, in booklet form for the use of officials, of information appertaining to the methods of our competitors.

Conclusion

The gas in industry has an unassailable record of public service and progress, over a long period of time. Once again it is confronted with vital problems which must be solved. An established national fuel policy would allow the industry to play a fuller part in conservation of fuel resources, the nation's economy, and the welfare of the people; but formation of such a policy is in other hands. The leaders of our industry, strengthened in unity, are using, with encouraging signs of success, all resources at their command to find without delay means of reducing working and capital costs and raising sales. Given wise and courageous leadership, the personnel of the industry, as in the past, will maintain the high standard of efficiency and public service. To all I would say—co-operation depends on confidence and confidence depends on competence.

VOTE OF THANKS

Proposing the vote of thanks to the President, Mr. J. Ford (Inverness) said that in his address the President had shown the same qualities of profound and forthright outlook which characterised his four years of office as Secretary of the Association. He had covered a very wide field, spanning in time from the birth of Murdoch to the present day. Giving himself this scope he had rightly expressed opinions on many problems of the past and present. His suggestion that the meeting might be followed or preceded by a conference sponsored by the Board was a timely one and would, Mr. Ford hoped, be noted by those who were in a position to bring this about.

The advantages of hearing common problems explained and discussed on a wider basis than that of a division or group were apparent and would do much to remove from the minds of district managers the feeling of remoteness between them and the Board which existed at present. Mr. Ford paid tribute to the value of the quarterly news letter sent to all managers by the Chairman of the Board. The intimate style of those letters never failed to improve the morale of all of them and made them feel, no matter what their position, that their work was of real importance as part of a very large team. The highlight of the President's address appeared to be his enthusiasm for a national fuel policy. In disagreeing with him on this matter Mr. Ford knew that he would appreciate an expression of opinion opposed to his own. The President, said Mr. Ford, contended that such a policy would benefit the industry and that the establishment of a national fuel and power trust would result in its rapid expansion. Many would doubt that this would be so. A national fuel and power trust functioning for the nation's welfare would, it was assumed, be composed of experts, completely unbiased. Was it possible to have any expert completely unbiased? In the determination of what was best for the nation's welfare there was already great diversity of opinion and many would think that there was much to be said for fair competition between the various fuel industries, with the customer acting as the final arbiter.

Freedom to Fight

As Mr. Brown had pointed out, continued Mr. Ford, some of the methods of competitors were far from fair, but at least there was the opportunity to overcome these. With a national body the policy it dictated would have to be accepted without question, even if it were disadvantageous. The gas industry had prospered in the past as a result of the exertions of their predecessors and themselves and, subject to inspired direction from within, would continue to prosper so long as they were free to give the service of which they were capable. Mr. Brown's review of production plant development, he said, had shown that the industry was well to the forefront in seeking to achieve new and more economic methods of manufacture. But improved production technique would, by itself, avail little without a vigorous sales policy to keep abreast or even a little ahead of it.

Mr. Ford agreed with the President that their present sales organisation was not capable of keeping pace with the competition which now existed. In the smaller towns, particularly, few managers had either the time or the facilities to compete on equal terms with the salesmen and canvassers of competitors. The selling of their service and the status of those who specialised in its higher direction had, in future, to be rated on a level comparable with any other branch of the industry. The President's address had focussed their minds on some of the more urgent problems of the day and for that they were grateful to him.

Courage of Conviction

Seconding the vote of thanks to the President, Mr. William C. Campbell (Paisley) maintained that it was said a Presidential Address should express the personality of the writer, revealing his philosophy and general outlook on men and affairs. If this was so, then the address which they had listened to was satisfactory in those respects. Current affairs came under review; criticisms were not withheld where felt needful, and praise was discriminatory. They had known their President as a man of strong character, unafraid to state his opinions in a forthright way. This conviction of the rightness of his opinions and his courage in expressing them was to be

admired. His trenchant style of delivery, coupled with the sincere desire to present the soundest argument in favour of the case he sponsored, enlivened all debates and discussions in which he took part.

In his formative years, Mr. Brown had had the good fortune to serve under Mr. Harry Aitken at Leven, and latterly the late J. W. Napier at Alloa, two men of quality and ability, both eminent over the past forty years or so. It was not unnatural, therefore, that he should have acquired, or been influenced by, some of the notable characteristics of these men. His mentor, Mr. Aitken, was known for his capacity to understand problems affecting the man as well as the machine. His predecessor and former chief at Alloa, as the President had said, was a remarkable man, with exceptional gifts, and always the supreme individualist.

A Notable Tribute

Mr. Brown's ability as a gas engineer stood firm and unquestioned, continued Mr. Campbell. The fact that the Alloa undertaking was placed in his charge, with the full approval of one who had given the best part of his life to its creation, was a notable tribute, inexpressible by mere words. Mr. Brown did not fail his predecessor, but established his own reputation, adding to the renown of the undertaking. Thus when an assistant divisional controller was required in Aberdeen, his choice was almost automatic. Such then was the background of the man who had written and presented the address that morning.

Mr. Brown had opened by referring to the value of the meetings of the Association and the part they could play in promoting closer liaison between the members and the Board which they served. For the great majority of them, opportunities to meet the members of the Board and their chief officials were rare. No one would deny the fact that the creation of the team spirit was more important than the extortion of the elusive extra therm, and by gathering together at those meetings, more progress could be made towards the accomplishment of their aims and objectives than might be apparent from a cursory glance. Circulars and memoranda served their purpose, but the message delivered personally carried more weight. Only recently the Deputy Chairman delivered a paper to one of the junior associations. Though the message he wished to convey to his audience was appropriate, its importance merited the attention of senior officials. Could it be that the Association was unable to provide the platform for the delivery of such important messages?

Mr. Campbell added that the age of their Association should not prevent it from moving with the times, nor from adjusting itself to change. It would become increasingly difficult for future presidents, remote as many must be from the hub of affairs, to survey the scene in an all-embracing way. Others might be better placed to do so and to speak with authority. A change in the *modus operandi* of the Association might be desirable and the time ripe for the matter to be examined.

Capital Expenditure

The President had rightly drawn their attention once again to the subject of capital expenditure and its influence on gas prices—a subject which tended to become an oft-recurring nightmare. Plant costs were high enough, but the cost of providing supplies to the new housing areas was frightening. If those costs were charged against the consumers in the new houses, the price of gas would be such as to prohibit its use. The position was much the same with electricity. The two fuels would move into the 'luxury' class, and there would be a return to the coal range of long ago. If a refined fuel for heating and cooking was necessary in a new modern house, why should the cost of making it available be subsidised by existing consumers of gas and electricity? Should the burden not be placed squarely on the shoulders of the authority sponsoring the erection of the houses? Would it not be fair and equitable?

Mr. Brown had made reference to the work being done by their colleagues of the North Western Gas Board, the prime purpose of which appeared to be an attempt to increase the thermal capacity of gas production plant. Whether or not the results of their work were sufficiently clear at this stage to encourage hope, was difficult to say, but their keenest interest was excited. Mr. Campbell trusted that their efforts would be crowned with success in due time, and that the increase in thermal output from existing retort plant would prevent, or reduce at least, further capital investment in such plant. Increased output from existing plant and increased consumption of gas by existing, and new, consumers, was the sure cure for ills created by carrying heavy capital burdens. The President had made positive recommendations in the penultimate paragraph of his address. They did not doubt that the matter to which he referred received constant review in the light of changing events. Their sales organisation today was stronger than ever it had been in Scotland.

GASWORKS ACCIDENT AWARD

Damages of £1,160 were awarded to Charles James Haynes (37), Leeds, for injuries received in an accident while employed as a dumper driver by the North Eastern Gas Board at Meadow Lane Gasworks, Leeds, on February 18, 1952. Mr. Justice Pearson said there was a constructional defect on the dumper and ruled that the defendants, the North Eastern Gas Board, were four-fifths responsible for the accident. On the grounds of contributory negligence Mr. Haynes was one-fifth responsible.

ABSENTEEISM IN BRITISH INDUSTRY

There are 23 mill. workers in British industry. If a considerable percentage is absent from work, week in and week out, the loss to the country is tremendous. Mr. Oswald Moor, M.A., has made an intensive study of what he calls 'inexcusable absenteeism in industry' and it is the subject of a booklet which should be read by all managements. The vast majority of British firms have no idea of what their absentee rate is and how much it is costing them. Mr. Moor's enquiry reveals a difference of 5.8% between the maximum absence rate and minimum absence rate and, in the case of women, the loss of time is infinitely greater, the minimum absence rate being 2.3% and the maximum more than 13%. Hundreds, possibly thousands, of factories and offices are tolerating absence rates which can only be described as inexcusable. The problem is not confined to industry; one large hospital in London, by reducing absenteeism and lateness, has saved £18,000 in three years in wages alone. Mr. Moor's booklet, 'How to Reduce Absenteeism by Positive Planning,' with its original approach to the subject, calls for close study by all industrialists in whatever field they operate. It can be obtained from Blick Time Recorders, Ltd., 96-100, Aldersgate Street, E.C.1. (2s. 6d.).

SYMBOLS, SIGNS, ABBREVIATIONS

Confusion frequently results from the use by authors of different systems of symbols, signs, and abbreviations in similar or related branches of science and technology. When it was decided to revise two well-established and partly overlapping British Standards—viz., B.S. 560: 1934, 'Engineering Symbols and Abbreviations', and B.S. 813: 1938 'Chemical Symbols and Abbreviations'—it was thought desirable to take the opportunity of combining them so as to remove unnecessary conflict and pave the way to the development of a consistent system for the whole field.

As B.S. 560 covered such specialised subjects as 'locomotive classification', 'naval architecture' and 'hydraulics and water engineering', the B.S.I. Committee entrusted with this work decided that, in the first instance, attention should be focused on the more fundamental quantities of common concern to all branches of pure and applied science, on conventions relating to their use, and on abbreviations for relevant words, especially the names of unit. B.S. 1991: 1954—Part 1: General—is the outcome of this decision. It will be left to groups of experts in specialised fields to build in various directions on the foundations thus laid.

It is recognised that the attainment of a reasonable measure of agreement will entail the abandonment of a few practices that are well established in certain fields of work, but it is believed that the sacrifice is worth making. Departures from well-established usages are recommended, however, only where they are considered to be of serious importance. Indeed, it is strongly urged that recommendations of symbols for thermodynamic quantities should be strictly followed, for these quantities are widely used by workers in practically every branch of science and technology, and incomplete agreement on the symbols allocated to them has hitherto been one of the major sources of confusion.

Besides providing recommendations for a wide, but by no means complete, range of quantities, the standard is intended to give guidance towards the development of a general system. It urges that the general principles put forward should be accepted and followed rather than that there should be rigid adherence in all instances to recommendations on the use of individual symbols or abbreviations. Full account has been taken of the recommendations of the Royal Society Symbols Committee and of the reports issued from time to time by such international bodies as the International Electrotechnical Commission, the International Union of Pure and Applied Chemistry, and the International Union of Pure and Applied Physics.

Copies of this Standard may be obtained from the British Standards Institution, Sales Branch, 2, Park Street, London, W.1. Price 6s.

First in the field with a 10 year guarantee on its sealed unit

★ Features of the Main Refrigerator include ample storage space, a larger than usual frozen-food compartment and superior finish. An absorption-type model, it is silent in operation and cannot cause interference to radio or television reception. Attractive appearance with white enamelled cabinet of modern design. Hygienic easy-to-clean interior is vitreous enamelled.

CAPACITY
3.2 cubic feet (Gross).

SHELF AREA
6.3 square feet including base of liner.

FROZEN-FOOD STORAGE
Storage space for about 4 lbs. of frozen-food and 2 lbs. of ice.

ICE TRAYS
2 Aluminium trays with lever device for easy removal and flexible plastic dividers. 2 lbs. of ice (32 cubes) per freezing.

CONTAINERS
2 interchangeable, covered, plastic dishes for the storage of meat or fish and for salads.

CONTROL OF TEMPERATURE
A thermostat gives a controlled temperature in the cabinet. Gas supply is governed to eliminate variations in mains pressure.

DEFROSTING
Gas control tap has a defrost position.

FLINT LIGHTER
A flint lighter, operated from the front of the cabinet, is provided for ease of ignition.

GAS CONNECTION
⅛" B.S.P. male or ¼" B.S.P. female.

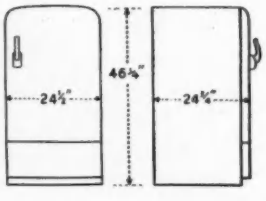
LEVELLING DEVICE
Four levelling screws are fitted to ensure correct alignment.

GUARANTEE
The cabinet and accessories (except plastic dishes) are guaranteed for ONE YEAR and the sealed cooling unit for TEN YEARS.

DIMENSIONS
Exterior as shown on diagram.

Cabinet interior
Height..27 in.
Width..17 in.
Depth..12 in.

Frozen-food compartment
Height..4½ in.
Width..8⅝ in.
Depth..12 in.
(Actual)



The MAIN 32 REFRIGERATOR

★ Note the name-made by MAIN

MAIN REFRIGERATION LTD., GOTHIC WORKS, EDMONTON, N.18

R2

B

ASPECTS OF ACCOUNTANCY

FROM A PAPER AT A JOINT MEETING OF THE WESTERN JUNIOR GAS ASSOCIATION AND THE WALES AND MONMOUTHSHIRE JUNIOR GAS ASSOCIATION AT CHELTENHAM ON MARCH 27, BY

W. E. BAGGS,

Chief Accountant's Department, South Western Gas Board.

The Wales Gas Board and the South Western Gas Board differ in many respects. However, there are common problems in accountancy just as there are in engineering. The methods I shall mention are in fact those of the South Western Gas Board.

There has always been a need for co-operation and understanding between the technical and accountancy branches, though there has usually been a channel between them which has been bridged only at those points where they simply had to be joined. Today, however, I feel that the need for co-operation is greater. We should so narrow the channel that we can step over it for our mutual benefit at any point.

Not long ago the chief of all but the largest undertakings was able to 'manage' his undertaking with a minimum of figures. On the other hand he had to exercise a great deal of knowledge of what was going on. With an enterprise the size of a gas board, top management has to exercise its control largely on the basis of information laid before it. This is one of the reasons why we are living in an era of returns, returns, and more returns. Advantage lies, however, in that available information makes it possible for every one of us to get to know a little bit more about the results of our own activities, provided that we have a working knowledge of what the returns mean. This does not mean that there is any less need for 'personal management' by the man on the spot. Indeed, it is vital that there should be 'personal management' at all levels to counteract any feeling of remoteness from the board. I want to emphasise that short-term returns are a first requisite to management.

All our activities are measured, in the end, in terms of money. We write down this measurement every day on the gas bills we send out; and once a year we present in detail our report to Parliament. Our consumer is not really interested in our efficient utilisation of coal. He or she is concerned with the bill for gas and coke. The accountant has to evaluate every scheme in terms of money. He considers 'capital charges,' with the result that a sound technical scheme has to be re-vetted and shorn of all but the barest necessities.

Are Accountants Necessary?

To this question there are four main answers. Accountants are needed to:—

(i) Show financial affairs at the end of each year, and give a financial account of stewardship during the year.

(ii) Provide management with day-to-day reports on how affairs are progressing, so that action may be taken.

(iii) Provide management with information and forecasts on which to take long-term decisions.

(iv) Carry out dull jobs, such as paying bills, sending out bills, collecting the money.

To fulfil the first three functions, it is necessary to have financial accounts, cost accounts, and budgets, together with the quantitative figures upon which they are built.

At vesting date, in the South Western Board's area there were 103 separate undertakings. Each kept its accounts according to its needs. The result was that there were almost 103 different ways of doing everything. We knew that we should be required to produce, from this mixed bag, accounts in a form to be prescribed by the Minister of Fuel and Power. We later found that the prescribed 'Form of Accounts' contained more detail than it had been customary for any undertaking in the area to publish.

Initially, it became necessary for almost all accountancy functions to continue to be performed on the spot. But the Board decided that the overall control of the accountancy functions should be at the Head Office, and that the preparation of the Board's financial accounts should be carried out there. In this respect, I think we differ from some other boards, where district accounts are compiled at district levels and amalgamated at the Head Office.

As a result of this decision, the only local accountancy functions are the recording of actual income and expenditure for transmission to Head Office, where all other financial matters are combined with these records, so as to form the Board's books of account, with the exception that cost accounts are produced locally.

The Need for Comparability

There must be a high degree of comparability in accounting. This applies to all statements, whether they be gas accounts, short-period cost accounts, or annual financial accounts. From comparable statements you can discern the trend of the movement of the various factors.

Speed of preparation of accounts can vary according to purpose. At one end we have the gas bill produced in a few days from the meter reading, and at the other, that mammoth production, our annual report and accounts, which appears several months after the end of the period which it covers. Some will say that one comes too soon, and the other too late. The accountant's department is always ready and eager to adopt methods which will lead to a reduction of the time lag—provided that (a) it does not sacrifice accuracy, and (b) any additional cost is justified by the value arising from the increased speed with which the figures are made available.

The Gas Act, 1948, imposes on each area board the duty 'so to exercise and perform its functions as to secure that the revenues of the board are not less than sufficient to meet its outgoings properly chargeable to revenue account, taking one year with another.' These outgoings are to include, in particular, allocations to the Central Guarantee Fund, to any reserve fund maintained by the board (and each board is required to establish a reserve fund), provision for the redemption of capital (all British Gas Stock is redeemable), and provision for depreciation of assets or renewal of assets.

This disposes of any idea we may ever have had that, when times are difficult, we could find some reason for charging the expense to capital, and thereby escape paying for it. It illustrates that there is really no such thing as capital expenditure. Capital expenditure is revenue expenditure spread over an agreed period.

Of course, we have to pay interest on the money we have borrowed. Though interest becomes payable as soon as the money is spent, depreciation occurs only on assets which are completed and put to work. There is a time lag between capital spent and the depreciation charge. Every gas board has increased the capital expended in fixed assets by about 75% in a little under four years; and a substantial increase has already taken place in 'capital charges.' We thus have to make equivalent savings in our revenue expenditure, wherever possible, by spending our capital on remunerative projects.

Depreciation and Obsolescence

Before nationalisation most undertakings kept their accounts on what is known as the 'double-account' system. After May, 1949, the industry decided to adopt the depreciation basis for all assets. The fixed assets of the former undertakings were brought into the books at their book values less any reserves specifically set up for depreciation or renewals. These assets are being depreciated on a 'straight-line' basis (*i.e.*, an equal amount every year as opposed to a percentage of the remaining balance) over the estimated remaining serviceability of the assets as a whole. Besides depreciation, which represents the normal wear and tear of assets, there is the question of an asset becoming obsolete before the end of its useful life, due,

for example, to closing-down an otherwise perfectly good, though rather inefficient, retort house.

The South Western Gas Board has charged against its revenue each year a sum to provide for premature obsolescence of this sort, and the Wales Board has allocated part of its profits for the past three years to a reserve fund to cover such obsolescence and also the heavy costs of replacing plant. As far as post-vesting fixed assets are concerned, the straight-line basis has also been adopted, the periods for the various classes of assets being those recommended by a committee of engineers and accountants under the chairmanship of Sir George Evetts.

The gas industry is spending large sums of money on capital, partly to rehabilitate the works and distribution systems which coped with large increases in output during the war, partly to cater for the expanding demand for gas, particularly in industry, and partly to form gas grids which enable the benefits to be derived from large-scale manufacture. There has also been a considerable increase in the amount of money required for working capital, due partly to increases in prices and partly to the increased volume of business.

Do we ever stop to think of the effect on our capital structure of the enormous cost of each new consumer (which may be taken as from £25 to £30 for mains and services alone) compared with the average cost (of about £20 each for everything, including works, holders, mains, services, meters and offices) of those we had at vesting date? Are our sales efforts always directed to attract the best business?

Mechanisation in Accountancy

There is a parallel between the engineering and accounting sides on the question of mechanisation. Wherever labour can be saved by the use of machines, we are keen to use them. Decision depends on the throughput of the machine. At the moment, the South Western Gas Board has three centres at which special machines are in use. Two of these have billing machines which produce a common form of bill and, at the same time, produce a copy which becomes the ledger, while summarised statistics are produced from the same operation. The third centre consists of a punched-card installation, which is used for the production of various kinds of statistical analyses and for the centralised payment of invoices. The developments which have recently taken place in mechanical accounting leave no doubt that, in the future, great economies will be made by processing original documents in one centre by use of punched-card machines. Over the next four or five years there will be a considerable movement towards this end. It will take long and careful planning.

An important aspect is internal audit. In the South Western Gas Board our own small internal audit staff and the professional firms have given considerable help in standardising our systems as well as watching security.

Yorkshire Juniors at Hyson Green

In springlike weather over 70 members of the Yorkshire Junior Gas Association visited the works of Metropolitan Gas Meters, Ltd., at Nottingham, on April 7. The party included Mr. A. Cole (President), Mr. I. Marshall (Secretary), Mr. A. J. Winter, Mr. F. Roberts, Mr. J. Edgar, Mr. O. G. A. Hofmann, Mr. C. G. Broome, and Mr. Wilkinson (Hon. Member, Nottingham). Before inspecting the works the visitors were entertained to lunch at the Trent Bridge Hotel and afterwards a group photograph was taken on the famous cricket ground.

The PRESIDENT remarked that it was an invasion of Yorkshiremen. He was sure their visit would be more than justified. He had been delighted to accept the invitation and they were looking forward to seeing the works.

MR. H. ADCOCK, General Manager and Director of the Company, replying, said the Company had been established in Nottingham for 57 years and during that time had built up a sound reputation in the gas industry as manufacturers of a reliable gas meter. The party would be able to see for themselves the care and attention taken by his staff and workpeople in maintaining that reputation.

The factory was not of modern design, and it was not built as a factory for making gas meters, but Mr. Adcock considered that, like the city, it had a certain amount of character, even if only reflected by some of the employees. They had some young members of the technical staff who had the necessary keen modern outlook on manufacturing methods, but they also had quite a number of old long-experienced craftsmen able to counteract any tendency of the young members to try ideas that had been proved unworkable a decade ago. Recently long service medals had been presented to six employees with over 50 years service and there were some 24 employees with over 35 years service.

MR. DOBSON, a Director, also said a few words of welcome. Mr. Kelly, Sales Manager, and his staff were also present.

In small groups the visitors were taken round the works, through the machine shop and tool room, the press shop and mechanism shop and through the various other departments until they came to the meter assembly shop, where the tinsmiths and sheet metal workers do the final assembly. Many questions were asked en route and particular interest was taken in the plastic valves which are being used with considerable success. All stopped to watch the gratings being cast from homogeneous tin-antimony alloys and then being ground and polished. At various stages meters could be seen under test. The visitors were also fortunate enough to see the first batch of diecast meters being assembled. These are shortly going out on districts for test.

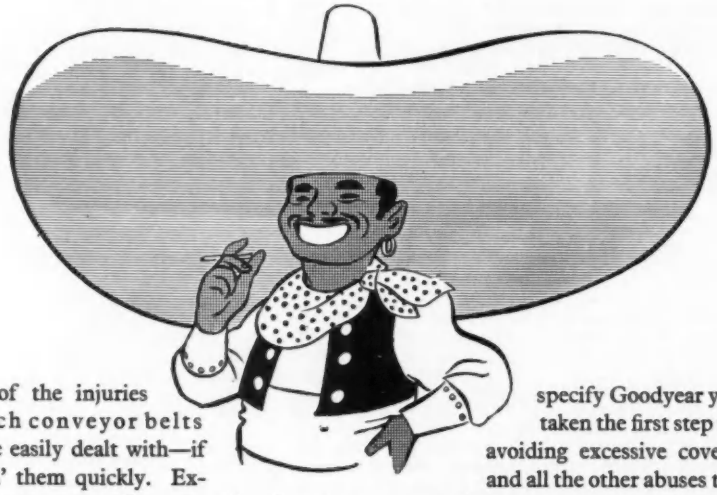
After a buffet tea at the Reform Club, MR. S. HARRISON, B.E.M., gave a short paper on meter construction.

PRACTICAL BELTMANSHIP ILLUSTRATED

CARE OF BELTS

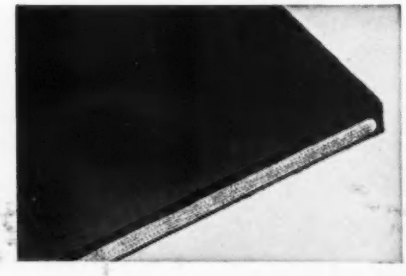
No. 2

"Excessive Cover Wear"



MOST of the injuries which conveyor belts sustain are easily dealt with—if you 'catch' them quickly. Excessive cover wear, for example, has a number of easily remedied causes, but unless prompt action is taken you may shorten the life of a belt considerably. Correct installation and regular maintenance will greatly increase the life of belting—and you'll find out all you want to know about its care in the Goodyear Maintenance Manual. When you specify Goodyear you have taken the first step towards avoiding excessive cover wear, and all the other abuses to which conveyor belts are prone. Whether your problems arise from abrasion, heat, load, lift, speed or troughing, Goodyear can help you!

The Goodyear Maintenance Manual is a very helpful 32-page booklet that is issued free on request. Please write to Dept. B.2, Goodyear Tyre & Rubber Co. (G.B.) Ltd., Wolverhampton, for your copy.



GOODYEAR "STACKER" CONVEYOR BELTING

Ideal for conveying ores of all kinds, rock, granite, glass cullet and materials of a similarly highly abrasive nature. Treated against mildew. It has the toughest covers obtainable, with the greatest possible resistance to cutting, gouging and abrasion. Available in a full range of plies and cover gauges, it is well suited to high temperature and abrasive conditions.

GOODYEAR

INDUSTRIAL RUBBER PRODUCTS

TRANSMISSION BELTING · V-BELTS · CONVEYOR BELTING · INDUSTRIAL HOSE

Gas Consultative Councils

NORTHERN

Gas Prices May Be Raised

Unless an additional £600,000 a year can be raised by working economies and profits from additional business, the Northern Gas Board as a last resort will be obliged to increase gas prices, Mr. E. Crowther, Chairman of the Board, told members of the Northern Gas Consultative Council at their meeting in Newcastle on April 5. 'We begin the new financial year faced with increased costs of £350,000 and a possible reduction of income from by-products of £250,000,' said Mr. Crowther. 'Consequently we have to find an extra £600,000 either by working economies and profits from additional business, or, if the worst comes to the worst, by an increase in gas prices.'

He knew the latter course would be as unpopular with the Council as it would be with the Board and if it could be avoided the Board would avoid it. The Board would delay a decision as long as it prudently could and would do its utmost to avoid the necessity of an increase. The best he could see by way of working economy was not more than £250,000, and it would require an increase of something like 8% in gas sales to make up the balance—an increase which was nearly twice as much as had been achieved in any previous year.

The Board, pointed out Mr. Crowther, realised that an increase in the price of gas would tend to diminish sales, and it might be that by-product markets would improve in the autumn. The situation was a difficult one, and certainly any substantial increase in the Board's costs —another increase in the price of coal for example—would defeat such hopes as being able to hold prices down.

Since the Board was formed five years ago depreciation charges were £500,000 more a year, and they would continue to rise until the whole of the book value of the original assets had been written off in 1969, after which they would stabilise at 'some figure short of £1 mill. a year.'

Work the Board had been obliged to carry out and the plant and equipment provided to integrate the area would soon have added £1 mill. a year to their costs. Referring to the rising cost of coal, Mr Crowther said: 'When it rose by 10% a year ago I expressed some doubt as to whether the removal of the 5% prompt payment discount would meet that extra cost and that we might have to look again at our prices.'

Other costs had added about £120,000 to their charges, and railway carriage would cost them £30,000 a year more. Mr. Crowther went on: 'On top of all this export markets for coke and tar products have fallen and the demand has weakened through Continental competition. Our net income from by-products is between £2 mill. and £2½ mill. a year, and the effects of a declining demand and growing competition may well reduce that income by 10% or as much as £250,000 a year.'

WEST MIDLANDS

Metering Industrial Gas

At the West Midlands Gas Consultative Council meeting at Birmingham on March 29, Mr. R. A. Maddock, on behalf of the British Pottery Manufacturers' Federation, stated that he had been requested by various members to make representations concerning the metering of gas fuel where factories under the same ownership and management were not joined together. There were cases of such factories which were supplied with gas from the same source, but at present were charged for gas separately, according to the separate readings of the meters. He was asked to point out that pottery makers felt that in cases where the factories of individual members used gas from the same source, the metering for consumption should be aggregated, because such supply was required for one business, although dispersed in two or three factories. He therefore asked that the Council request the Gas Board to consider the point.

The Chairman (Alderman W. H. Malcolm, J.P.) thought the Board had been considering this question some time ago, because the same thing must happen in every large city, with firms having factories in different districts.

Mr. Maddock pointed out that his remarks applied to factories owned by members near to each other which were separately metered.

It was agreed that the matter be passed on to the Board as raising a specific point and not a general one. At this stage, Mr. G. le B. Diamond, Chairman of the Board, readily accepted the idea that the Board should look at the matter again and consider the reply. The Consultative Council would understand that one of the difficulties was that the Gas Board had to be fair to all, in that if it did this sort of thing for the pottery industry then it should be applicable to other industries, including the Post Office and other organisations which were all over the place. And as in the case of purchase tax, the Gas Board could not afford to do without these separate meterings, although it had every sympathy with the cases cited by Mr. Maddock, and was prepared to reconsider the question.

Mr. Maddock remarked that they only suggested that where two connected factories were drawing gas from the same source, although it might be supplied at two different points, there should be an aggregation of consumption so that the customer could benefit from the lower charge for high consumption.

Mr. Diamond observed that it would be unwise to enter into any long discussion now over the interpretation of what was termed 'the same source,' which might be considered by some to be gas supplied by the West Midlands Gas Board, a rather wide coverage. It was a difficult problem, and as he said, 'we have every sympathy with Mr. Maddock's representations, but let us have a look at the position again, and carry it through our accountancy exercises and see what it means,' Mr. Diamond added.

This was agreed to.

Mr. Diamond's Report

In his report, Mr. Diamond said an exhaustive examination of the finances of the Mond undertaking had been made and, as the heavy expenditure incurred in putting the plant in much better condition was fructifying and had led to increased efficiencies, the Board had decided to amend the Mond gas prices and the tariff structure with effect from the first meter reading on or after March 31. In giving comparisons of present and proposed tariffs, it was pointed out that the new tariff structure provided for eight instead of five blocks, which should meet a wider variety of circumstances, and that a price reduction had been made at each point.

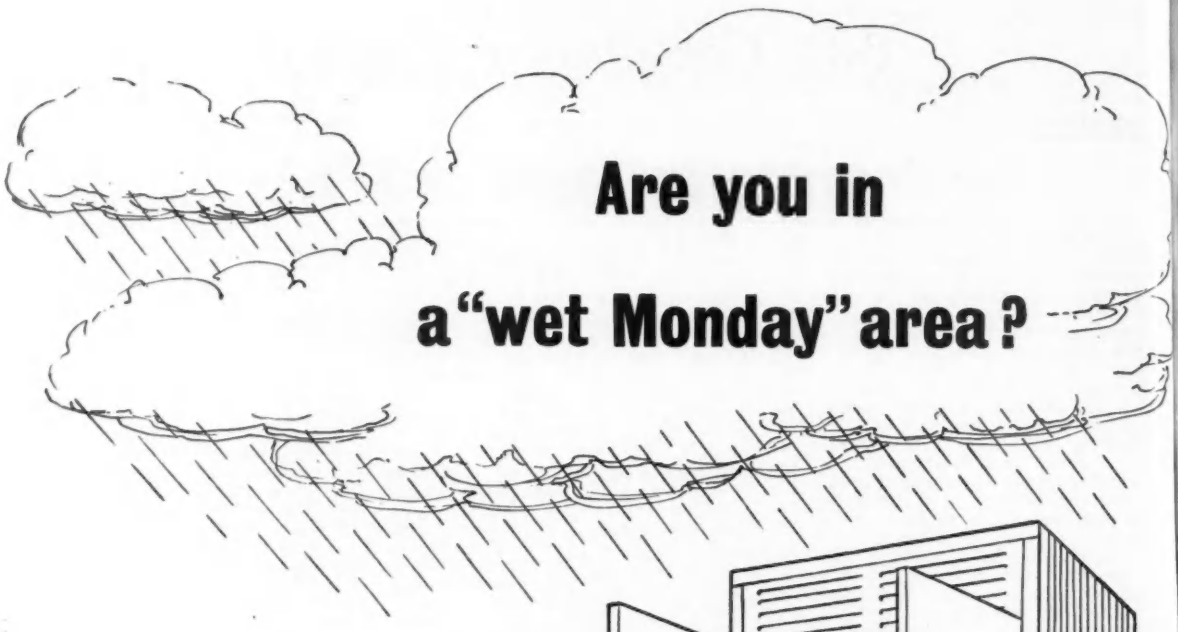
Tariff 10 for gas taken during the day had been first 1 mill. cu.ft. per month, 23.5d. per 1,000 cu.ft.; next, 10 mill. cu.ft. 21.5d.; next 30 mill. cu.ft. 20.0d.; next (second) 30 mill. cu.ft. 17.5d.; all over 71 mill. cu.ft. 16.0d. The new rates are: First, 1 mill. cu.ft., 23.0d.; next 4 mill. cu.ft., 20.5d.; next 6 mill. cu.ft., 19.5d.; next 15 mill. cu.ft., 18.5d.; and the next three stages of 15 mill. cu.ft. each, 17.5d., 16.5d., and 15.75d.; all over 71 mill. cu.ft. 15.0d.

Tariff No. 11 for gas taken during day, night and week-end, approved consumption only, showed the following changes: Present, for quantity per month: First 1 mill. cu.ft., 22.5d. per 1,000 cu.ft., and similar stages as in tariff 10—20.5d., 19.0d., 16.5d., over 71 mill. cu.ft. 15.0d. The new rates were, in similar stages as in tariff 10—first, 1 mill. cu.ft., 22.0d., 19.5d., 18.5d., 17.5d., 16.5d., 15.5d., 14.75d, over 71 mill. cu.ft. 14.0d.

The Chairman explained that the report was a comprehensive reply to the points made by the deputation of industrialists using Mond gas, and asked for any comments. The argument of the deputation was that Mond gas had risen in an unduly high proportion and that fuel costs entered into export prices. Certain firms were considering whether to go over to other fuel unless some alteration was given. Members had received copies of the report in advance, and Councillor G. E. Boast (Hinckley), saying it was a comprehensive report and that the deputation was perfectly right in presenting its case before the Council, moved the adoption of the report. This was seconded, and carried without dissent.

History of Mond Gas

The Gas Board's report traced the history of the Mond gas concern and its position at vesting day. It pointed out that a much higher rate of expenditure was needed after the take-over, involving £230,000 on repairs and maintenance of buildings and plant, and over £70,000 on the distribution system. The company had 45 miles of main with less than 70 effective consumers (say, three to each two miles), against an average of 173 consumers per mile of main taking town gas in the same districts. Since vesting day the cost of Mond coal had risen by 48.7% and the average price of Mond gas by 50%. This gas now averaged 11.94d. per therm,



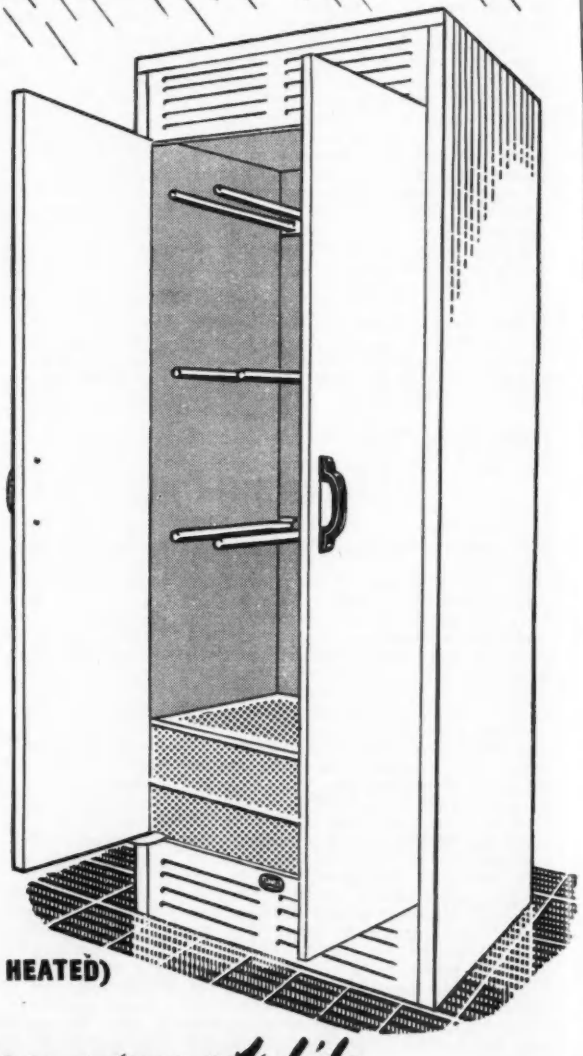
Are you in a "wet Monday" area?

Statistics show that over a large area of Britain, more than 50% of Mondays are wet.

The Flavel Clothes Dryer takes the worst worries out of washday. In two hours, 16 lbs. of wet wash can be dried, ready for ironing, at a very low cost.

The Clothes Dryer can be supplied as an independent complete unit or with one side and back deleted for corner fixing; or without sides and back for building into a breeze block recess.

The burner unit comprises a perforated steel box in metallised finish heated by neat flame burners, and includes a constant pressure governor, tap, pilot and flame failure control. Gas rate, 10,000 BTU/hr. (20 cu. ft. per hour of 500 C.V. gas.) Gas connection prepared for right or left-hand ¼-in. B.S.P.



The

FLAVEL

CLOTHES DRYER (GAS HEATED)

for the modern way of life

FLAVELS *of* LEAMINGTON *MAKERS OF FINE COOKING & HEATING APPLIANCES SINCE 1777*

which compared with an average price for industrial gas in the three central divisions of 13.04d.

The report emphasised the commercial vicissitudes which resulted in the anticipations of the founders of the Mond undertaking not being realised—two factors being sulphate and coal costs.

NORTH WESTERN

Uniforms for Meter Readers

The North Western Gas Consultative Council, which has been a persistent campaigner for reduced prices for the high grade coal used by the industry, to make its prices more competitive with those of the electricity industry, has decided temporarily to suspend its efforts to secure a more economic scale of charges. At its meeting in Manchester on April 1, the Council decided to await a report on the new 'Rochdale' process which will be put into operation at Partington in June before deciding future policy on the issue.

Following a report by the Chairman, Alderman C. E. P. Stott, on a meeting of Chairmen and Deputy Chairmen of Gas Consultative Councils to discuss the price of coal to the industry, information was requested on the likely effect of the new process on prices and the quality of coal required.

Alderman Stott said the process was limited to vertical plant, but the North Western Board had a high percentage of this type of plant. The new process was capable of using a much lower grade of coal and the extraordinary thing was that the class of coal which had been deemed unsuitable for coking had produced a really high quality coke. The promise of cheaper gas when the system was in more widespread use was considerable.

Alderman W. Tattersall said it seemed rather odd, recalling that two years ago the Council had taxed the Gas Board about increasing its manufacturing stations on the supposition that they were budgeting for an increase in consumption, that at a time when consumption was less we had arrived at a type of plant which was going to produce more. It seemed they need not have gone in for these vast increases in production units which put them in the red financially. Research which had been done recently could perhaps have been done then.

Joint Meter Reading

The Council had before it a reply from the Board to its request for a report on the experiment of joint reading of gas and electricity meters. It stated that the Board Secretary was not in a position to add anything to what had already been communicated on the matter, although it was understood discussions were still taking place on a national basis.

The Council decided to press for more satisfactory information about the experiment. 'It must be two and a half years since we were told this experiment was to be started and I think we are entitled to an answer,' declared Councillor A. W. Lowe.

Concern at the measures adopted by the Gas Board in the Rossendale Valley area to identify its meter readers was expressed by the Chairman and Councillor G. Alderson. The Chairman said that in this particular area it had not been the practice of the staff to wear uniforms. Instead they carried certificates to identify themselves.

'What is provided is totally inadequate,' he said. 'It is simply a piece of paper signed by the accountant and is easily forgeable. I would not be prepared to accept it as satisfactory.'

Councillor Alderson said there was particular concern in homes where both husband and wife went out to work. The meter reader then pushed a note under the door asking them to leave the key with a neighbour. When the reader called for it he had only a piece of paper to prove who he was.

The Council was informed that the Board would shortly be providing uniforms for its meter staff.

Tribute to the services to the Council of Councillor R. M. Bradburn, of Birkenhead, who is retiring from local government and will automatically relinquish his seat on the Council, was paid by the Chairman.

COMPANY NEWS

AUSTRALIAN GAS LIGHT

The directors of the Australian Gas Light Company report that the net profit for the year ended December 31 amounted to £393,218. The amount brought forward from profit and loss appropriation account was £159,027, making a total of £552,245. Interim dividend of 3% was paid in respect of the half-year to June 30, and the directors now recommend a similar distribution for the half-year ended December 31, which will absorb £145,800, leaving a balance forward of £260,645.

RAMSEY GAS LIGHT

For some years, the Ramsey (Isle of Man) Gas Light Company has been selling appliances on a cash basis only, but the directors recently decided to recommence hire-purchase facilities in respect of most appliances. This was stated by Mr. J. C. BREW, J.P., who presided at the annual meeting. Moving the directors' report, he said that gas sales for 1953 were down on the previous year, due no doubt to the exceptionally mild weather, and also to the general economic position of the island. Sales of coke had increased substantially, and it had been found possible to import coke of good quality for sale at a price approximating to that of locally produced coke. Tar sales had been almost 70,000 gal., an increase of 30,000 gal. over 1952. Crude tar production was supplemented by outside purchases, and the new tar distillation plant was producing good quality road tar. While the remuneration from coke and tar not of their own manufacture was not high, such purchases helped to keep the staff fully employed. The company had a weekly wage bill of about £200. Sales of appliances, fittings and Calor gas were £4,744. Coal was the major item of expenditure. At the end of the year they had cash at the bank on sinking fund totalling £1,804. Since then they had invested £1,000 of that in 3½% Defence Bonds, and were seeking an investment for the balance. The usual dividend of 40s. a share was declared.

LANCASHIRE DYNAMO

The final dividend of Lancashire Dynamo Holdings, Ltd., is at a rate of 8½% with a bonus of 1½% on ordinary stock, making a total of 14%, for the year ended December 31. The net profit of the Group for the year before taxation amounts to £505,454 (against £488,302 in 1952), from which must be deducted taxation on these profits of £291,813 (against £287,771), and to which must be added taxation provisions of previous years no longer required of £16,266, leaving a balance available for appropriation of £229,907 (against £200,531), £58,418, retained in subsidiary companies.

C. & W. WALKER, LTD.

The directors of C. & W. Walker propose to sub-divide the £1 ordinary shares into four ordinary 5s. shares and to make a scrip issue of two new fully paid ordinary 5s. shares for each £1 ordinary share now held. It is also proposed to increase the capital to £300,000 and to make certain alterations in voting rights. Dividend for the year ended January 31 is 10%, the same as for the previous year, with a bonus of 7½% against 5% for 1953. The group net profit was £37,571, a substantial increase over the £27,782 for the previous year, after tax of £41,551, against £35,051. The sum carried to reserve has been reduced from £11,300 to £6,500, and the balance carried forward is £62,061 against £45,894.

PARKINSON & COWAN

The Directors of Parkinson & Cowan, Ltd., recommend payment of a dividend of 9% (against 7% for the previous year) on the ordinary stock for the year ended December 31, 1953. The consolidated gross trading profit for the year amounted to £330,221 (against £355,422). Group net profit was £144,739, after all charges (including taxation £75,875) and after crediting £64,330 in respect of taxation adjustments relating to previous years. The corresponding group net profit for 1952 was £75,380.

MARYBOROUGH (QUEENSLAND)

The Directors of the Maryborough (Queensland) Gas and Coke Company state in their annual report that sales of gas for the 12 months ended December 31 show a substantial increase as compared with 1952. But the basic wage was increased on three occasions and the price of coal increased on two occasions during 1953. These increases, however, show a substantial decrease as compared with those of the previous two years and are a hopeful sign that the inflationary spiral will soon be completely stemmed, and the Board will be able to budget 12 months ahead. There was a good demand for residual products. New carbonising plant is now in full operation and giving satisfaction. The Company is now in a position to cope with the ever-increasing demands for gas. The profits, after writing off £2,500 for depreciation and transferring £700 to reserve fund, amount to £4,367. A dividend of 5% absorbs £3,712.

FAULTLESS PERFORMANCE

As the ballerina's faultless performance and flawless appearance delight her critical audience, so the faultless performance and flawless appearance of the Century Cooker delight the critical housewife . . . as the ballerina's perfect dancing is the result of years of training and practice, so the Century is the result of R. & A. Main's years of experiment and research.

Always to the forefront in improving the efficiency of the gas cooker, R. & A. Main Ltd. have been "first in the field" with many outstanding features . . . in 1922 Main introduced the simplified form of cooker construction . . . in 1927 Main were first with an all-enamelled cooker . . . and in 1935 Main introduced the first all-sheet metal cooker.

The No. 20 Cooker was the first chassis-less model to be produced and marketed in Britain, and it was also the first cooker to incorporate an oven-flue vent discharging in front of the backplate. The high efficiency and popularity of the Century has indeed proved the worth of Main's years of constant research.

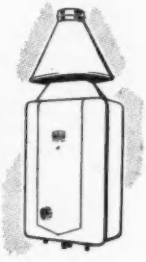
MAIN No. 20 CENTURY GAS COOKER

C4

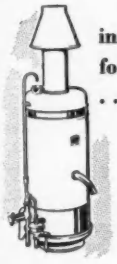
Note the name-made by MAIN

R. & A. MAIN LIMITED
LONDON and FALKIRK

there is a MAIN water heater for every domestic purpose . . .



instantaneous for a complete household service . . . the M.I. Multipoint

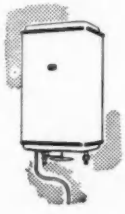


instantaneous for the bath . . . the New Junior

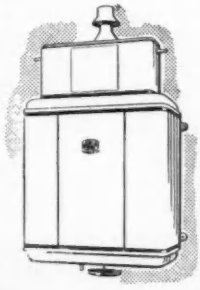
instantaneous for the sink . . . the Pronto

instantaneous or storage

for a complete household service . . . the G.L.C. Circulator



storage for the sink or lavatory basin . . . the Thermain No. 2



storage for a complete household service . . . the Thermain No. 15

MAIN WATER HEATERS Ltd.
Gothic Works, Thornton Rd., Croydon, Surrey.
W5

Leeds Smokeless Zone Campaign

Mr. James Goodfellow, Chief Sanitary Inspector of Leeds, revealed at a meeting at Wakefield on March 22, sponsored by the Solid Fuels Federation, and attended by representatives from health authorities, industry, the N.C.B., the North Eastern Gas Board, and consumers, that the Leeds Health Committee was campaigning for the building of a new estate which was to be a smokeless zone from the start. Applicants for houses on the proposed estate would not be considered unless they were prepared to sign agreements to use only smokeless fuels. The building of a small estate of 100 to 200 houses was suggested in which proper smokeless fuel burning appliances would be installed, with adequate storage accommodation. Mr. Goodfellow believed that a small beginning such as proposed would prove the practicability of the whole policy.

The Housing Committee had still to be convinced that it was a suitable step to take, and there were several things to be considered, but he was confident that the City Architect could meet the points.

Dr. C. G. K. Thompson declared that while there were 60,000 tons of coke packed at Coal Board plants in the West Riding and over 10,000 tons available from the North Eastern Gas Board, some coal dealers were telling housewives that they could not let them have enough coke. He had discovered that coal distributors did not receive the same trade discount for handling coke as coal.

Mr. J. M. MacLusky, North Eastern Gas Board Group General Manager, informed the meeting that there had been long talks with the distributors on this problem, and agreement had been reached on a marketing scheme which was now to be submitted to the Ministry for approval, and it was hoped to introduce it on July 1. The scheme would provide for uniformity of delivery prices throughout the area. Stating that coke was now available, he admitted that so far the methods of distribution had not been successful. The majority of distributors found the trade margin allowed less than for handling coal, but the incentives incorporated in the new scheme would, he said, obviate that handicap.

Mr. W. G. D. Colbrooke, N.C.B. Divisional Marketing Officer for Coke and By-products, said his Board had also agreed to a scheme on similar lines which was to operate from the same date.

Wales Juniors

The members of the North Wales Section of the Wales and Monmouthshire Junior Gas Association visited the Point of Ayr Colliery on March 30, when through the courtesy of the National Coal Board they spent a very interesting afternoon. Some of the members descended the pit to see the methane extraction points at the coal face and others of the party inspected the plant at the pit head dealing with the supply pipes taking off the methane from the pit, and the compressor house where the gas is compressed into cylinders for experimental purposes. They also inspected the boiler house where methane is being used to fire the colliery boilers.

An additional attraction at the invitation of Messrs. Ashmore, Benson, Pease & Co., Ltd., was an inspection of the new Wiggins holder recently erected at the colliery for the storage of methane. The new power house was also visited.

After the colliery visit the members were entertained at tea at Prestatyn at the invitation of Mr. O. P. Cronshaw, the Engineer and Manager of the Prestatyn undertaking of the Wales Gas Board. Mr. C. W. Butler, the Chairman of the Section, in moving a vote of thanks to all concerned, spoke of the activities of the Section during the session and mentioned the loss sustained by the resignation of Mr. J. Lomax, the late Hon. Secretary, who had been appointed Engineer and Manager at Pembroke. He felt sure that all members would congratulate Mr. Lomax on his new appointment. The duties of Secretary of the North Wales Section had been taken over by Mr. H. J. Stanley, of Penmaenmawr.

Mr. J. Pepper, of Holyhead, seconded the vote, and Mr. Cronshaw replied.

Public Service Pay Protest

'Immediate and vigorous action' to improve salaries was demanded at a special conference of the National and Local Government Officers' Association in London on April 3. The conference had been called on the requisition of 55 branches to protest against recent pay increases of £10-£25 a year, and was the first special conference to be held on branch demand in the Association's 49 years' history. It adopted by a substantial majority a motion by Stockport branch, which had instigated the demand for a special conference, instructing the Executive to obtain 'a drastic revision' on present salary scales.

Moving this, Mr. R. Yarwood, Stockport, said that there was great dissatisfaction throughout the service, both with the latest awards and the deterioration in standards since national salary scales for local government officers were first agreed in 1946. Intermittent pay increases had invariably fallen short both of the rise in the cost of living and of the pay of other workers. Whereas prices had increased by 40%, the pay of local government officers had risen by amounts ranging from 5% at the top of the grades to 30% for those at the maximum of the lowest grade. The result was that the higher grade man had today only three-quarters of the purchasing power he had in 1946.

Because of this, local authorities were no longer getting recruits of the right quality.

For the National Executive Council, Mr. G. R. Ashton, Chairman of its Service Conditions Committee, said that on this issue the Association was united. It was alarmed at the effect of the employers' policy on the future of the public service, and it was convinced that a drastic revision of present salaries was essential to encourage recruitment, improve incentives, and to retain experienced and qualified staffs. Existing scales had been in operation for eight years, and a review was now urgently necessary.

After carrying the Stockport motion, the conference adopted an Executive motion declaring that existing salaries failed to attract and retain staff of the right calibre in adequate numbers to such an extent that the continued efficiency of the local government and other public services was seriously jeopardised. The motion called on the Association to rectify deficiencies in the existing scales, fix appropriate differentials, and restore the prestige of the services.

Price of Mond Gas

A struggle on price, between users of Mond gas and the West Midlands Gas Board, is to continue. The Chairman of the Board, Mr. G. le B. Diamond, on April 8 received a letter asking him to name a date for a meeting with representatives of the customers concerned. In January, the users of Mond gas opened their claim for the price of the gas to be brought down to a 'reasonable and economical level.' Mond gas, produced at Tipton, is conveyed to a number of industrial customers by a special pipeline. In the past nine years its price has quadrupled. There is now little difference in price between Mond and town gas. The West Midlands Gas Consultative Council received a deputation from Mond gas users in February. As reported on p. 185 of this issue of the 'JOURNAL' Mr. Diamond, at the last meeting of the Council, announced reductions in price of Mond gas of between a halfpenny and three-halfpence per 1,000 cu.ft., according to the amount consumed.

Mr. Diamond, on that occasion, referred to increased cost with which the Board had been confronted. These were outside its control, he said.

Mr. J. C. Mills, a Director of Zinc Alloy Rust-Proofing Co., Ltd., Wolverhampton, who led the deputation to the Consultative Council, made public a letter which he sent to Mr. Diamond on April 7. Mr. Mills wrote: 'Your report to the Consultative Council has now been considered by Mond gas users; and they are unanimously of the opinion that, although you show a willingness to produce a mass of figures, none of those you have produced answers our case for a 50% reduction in Mond gas price.' Mr. Mills claimed that, for all practical purposes the case made by the deputation of Mond gas users had been ignored.

He continued: 'We must now request you to name a time and date when you can put before representatives of Mond gas users the figures of your trading account since nationalisation which will satisfy them on the major points of issue—namely, that Mond gas can be sold at 6d. or 7d. a therm.'

The Board was no doubt aware, the letter continued, that industrialists were being forced to put in alternative methods of heating. Industry was, therefore, not receiving the benefit of the cheap fuel which Mond gas used to supply.

He stated: 'We suspect that these town gas people who are in control have no interest in making a cheap producer-gas, in competition with their other product. We want to know whether that is national or local policy. If it is eventually intended to do away with Mond gas, we must know, because we shall have to make alternative arrangements.'

Mr. J. E. Powell, M.P. for Wolverhampton, South West, has also received reports from both sides in the dispute, and has said that he is studying the situation.

IN PARLIAMENT

Kings of the May

The Directors, General Manager, and Secretary of the new National Fuel Efficiency Service, have already been appointed. This was announced by Mr. Geoffrey Lloyd, Minister of Fuel and Power, in answer to a question by Mr. Philip Price (Lab., Gloucester West). Staff recruitment is proceeding. The service is expected to be operating on May 1. Rejoiced and spurred-on by this answer, Mr. Price asked if he could have any information about the amount of fuel saved as a result of the installation of improved plant. Without hesitation Mr. Lloyd said that the saving in fuel was realistic—about 3 mill. tons of coal a year. Improved domestic heating, he added — and this is significant — was thought to have resulted more in increased comfort than in reduced fuel consumption.

Following a minor interjection by Mr. Noel-Baker, Mr. Geoffrey Lloyd's predecessor in office, to make it clear that the saving was in the neighbourhood of 3 mill. tons a year, Dr. B. Stross (Lab., Stoke-on-Trent Central) asked the Minister of Fuel and Power what medical supervision is available for workers in the gas industry of Stoke-on-Trent. Again without hesitation Mr. Lloyd explained that the West Midlands Gas Board employs three full-time and a number of part-time medical officers to look after the physical welfare of its employees. Dr. Stross, appreciative of this reply, went on to refer to the work of the Medical Research Council and to the 'specific risks which gas workers have to undergo . . . including cancer of the lung'. Could the Minister see that as far as possible the gas boards throughout the country did in fact provide ample medical services for their workers?

Mr. Lloyd: 'I have brought that subject to the attention of the gas boards and impressed on them the importance of medical services.'

Sulphur in the Air

In answer to a question by Mr. S. Hastings (Lab., Barking) Mr. Lloyd agreed that the limit had been reached in the saturation of the River Thames with calcium sulphate when two only of the electricity generating stations were operative on its banks. The question was concerned with oxides of sulphur in the vicinity of power stations. The Minister said that work is now proceeding with 'a new process involving the use of gasworks liquor'; but, he added in amber, the process is in an experimental stage.

Mr. Geoffrey Lloyd knows little rest from 'sulphur in the air'. We must face the fact, he said (and fortunately we have not to nose up to it too closely), that the method of sending out smoke at high temperature and, by fans, at a high velocity, is the best practical method known to engineers, apart from the method of gas washing, which 'some experts consider not to be very satisfactory.'

Mr. Hastings: 'Is it not a fact that in case of fog those gases sent out at a high velocity will descend and produce all the troubles which have existed in the past?'

Mr. Lloyd: 'I am a bit of a fog expert. I would say that it is not true of radiation of fogs of limited height. It would be true of denser fogs which grow up after fog has continued for several days.'

Dirt Throughout the Areas

Air pollution! Mr. Ellis Smith (Lab., Stoke-on-Trent South), quick off the mark and without any palaver, asked for statistics about the filth deposited at places where measurements are in fact taken of such deposits.

Here we are, replied Mr. J. R. Bevins, Parliamentary Secretary to the Minister of Works, who promptly produced a mass of data which, if not particularly illuminating, are of direct interest to the gas industry. We select a few figures out of Mr. Bevins' bags:—

Let us take average monthly deposits (officially registered at official stations). Stoke-on-Trent is comparatively a mild offender—round about 20 tons a month. So we turn to the 'City of Enlightenment', Manchester. Philips Park, Manchester, shows a figure of 44 tons of dirt per square mile per month. Trafford Park, Manchester—a sort of testmatch arena—unruffled by Philips Park, boasts over 56 tons of deposit in comparable period and area. We move slightly out of Manchester to Hesketh Park, Southport, which convalescent centre can claim only 9 tons deposit a month, slightly less than Bedford Road Park, adjacent.

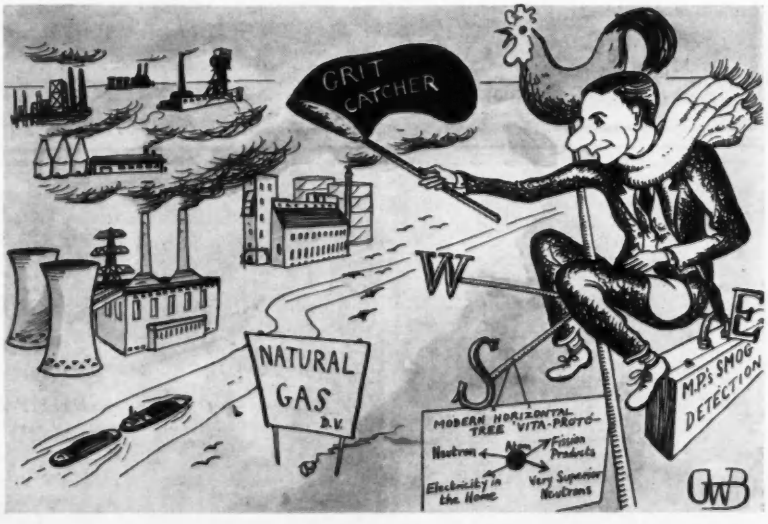
Mr. Bevins was allowed no rest. No sooner had a spate of figures been presented to Mr. Ellis Smith than the hon. Gentleman, Mr. Smith, in common with Oliver, asked for more. Figures concerning concentration of smoke and sulphur dioxide over the past five years, he intimated, would partially satisfy him. Without in any way twisting the picture, the figures given showed that Salford was responsible for 54 milligrammes of smoke per 100 cu. m., and 15 parts of sulphur dioxide per 100 mill. of air. The figures relate to the period from January, 1949, to December, 1953. Corresponding figures for Pembroke Dock were one and *nil*. Two recording stations in Birmingham emerged halfway in salubrity.

Mr. Bevins explained that data were not available for the filth deposited by Bournemouth and Eastbourne.

Dounreay

How many *Gazetteers of the World* feature Dounreay?

We were more amused than astonished when Mr. Hector Hughes (Lab., Aberdeen North) asked the Secretary of State for Scotland for a *detailed statement* of the Dounreay plans. Caparisoned in concrete, Mr. Henderson Stewart, Joint Under Secretary of State for Scotland, in rocklike reply, said that 'the Dounreay reactor will be experimental . . . We are fully aware of the potentialities.' In the interim knowledge that 'it will be several years before there is sufficient development to enable us to take action,' we rest quietly in bed o' nights.



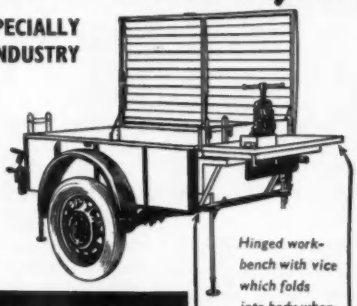
Mr. Ellis Smith, who detests dirt and grime in the air, penetrates the smoke screen.

Take your workbench with you

ON A PRATT TRAILER SPECIALLY DESIGNED FOR THE GAS INDUSTRY

This latest addition to the range of PRATT trailers embodies all the recognized qualities of the other models... sound design and construction, strength at minimum weight, excellent springing, stability, good carrying capacity.

WRITE FOR DETAILS



Hinged workbench with vice which folds into body when travelling or not in use.

THE PRATT ENGINEERING COMPANY
NORTHALLERTON, YORKS. TELEPHONE: NORTHALLERTON 142

STEEL TUBES & FITTINGS FOR Gas, Water & Steam

TRADE MARK

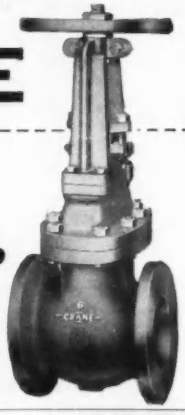
RUSSELL BROS (WALSALL) LIMITED
BRADFORD TUBE WORKS · WALSALL · ENGLAND

The Bradford Tube Works occupies a factory area of some three acres exclusively devoted to the manufacture of Steel Tubes and Fittings.
Contractors to Admiralty and War Office. Extensive stocks.

SM/2B 1008/2

CRANE

VALVES for Gas, Steam, Water, Oil and Air



AMAL

Calibrated Jets & Injectors
to meet a specification of consumption
A1

AMAL LTD., HOLDFORD ROAD, WITTON, BIRMINGHAM, 6

UNDERPRESSURE ENGINEERING CO., LTD.

UNDERPRESSURE CONNECTIONS
SPLIT COLLARS
SOCKET CLIPS

UNION FOUNDRY, MANSFIELD, NOTTS.
ALL TYPES OF DISTRIBUTION MATERIAL IN STOCK
Service Enquiries :
STAFFORD HOUSE, NORFOLK STREET, STRAND, W.C.2.
'Phone: MANSFIELD 1256. *'Phone:* TEMPLE BAR 9910.
'Grams: CASTINGS, MANSFIELD. *'Grams:* WASHER, ESTRAND, LONDON

CENTRAL ACTION DRILL STANDS
SERVICE CLEANSERS
TOOLS, ETC.

"THE DOUGLAS PUMP"

SHEWN FITTED WITH SUCTION PIPE LINE STRAINER, GIVING CHOICE OF TWO SUCTION LINES, PUMP & STRAINER STEAM HEATED. GOOD SUCTION. SLOW SPEED.

WILLIAM DOUGLAS & SONS LTD., PUTNEY - - LONDON, S.W.15.

Bind your JOURNAL each week

Gold lettered on the spine complete with instruction sheet.

No loose copies to be mislaid

We offer Journal readers a simple method of temporarily binding their copies as received week by week. No time lost searching for a particular issue; Journals removed and replaced in a few seconds. Designed to hold 13 issues, and whether completely or only partially filled the book effect is always maintained.

Price 12/6 each plus 9d. postage.

Obtainable from:

WALTER KING, Ltd., 11, Bolt Court, Fleet St., London, E.C.4

PUBLISHERS' NOTICE

The " Gas Journal " is published every Wednesday, price 1/3d.; by post 1/5d.

Subscription Rates: Home and Empire:—52/- per annum; Foreign:—60/- per annum. (Both payable in advance.) A copy of the " Gas Journal " Calendar & Directory is presented each year to continuous subscribers.

Classified Advertisements: All small classified advertisements are charged at 1/9 per line (approx. 7 words)—minimum charge 10/6. A Box Number address occupies 2 lines, and a further 6d. is charged towards cost of postage on replies. Copy must be received by first post on Monday to ensure insertion in that week's Journal.

Displayed Advertisements: Rates obtainable on application to the Business Manager. Change of copy for displayed spaces must be received 14 days prior to publication if proofs are required. Type area of inside pages 10" deep × 7" wide; block screen 120.

BUSINESS MANAGER : S. T. CULLEN

MIDLANDS MANAGER: G. B. Torrance, 42, Wychall Lane, King's Norton, Birmingham, 30.

NORTHERN MANAGER: W. Q. Foster, 33, St. Helens Road, Harrogate. *'Phone:* Harrogate 84291.

WALTER KING, LTD., 11, Bolt Court, Fleet Street, London, E.C.4.

Telephone: CENtral 2236-7. *Telegrams:* Gasking, Fleet, London.

OXIDE

DUTCH AND DANISH BOG ORE
SPECIALLY ACTIVATED OXIDE OF IRON

Oxide supplied on loan or sale outright.
Highest prices paid for Spent Oxide.

Send your enquiries to

GAS PURIFICATION & CHEMICAL COMPANY LIMITED
ESTABLISHED 1873

PALMERSTON HOUSE, OLD BROAD STREET, LONDON, E.C.2.

Telegrams: "Purification, Stock, London." Telephone: London Wall 5077

IT'S NEW!
CHLORO-FLASH BY
NU-SWIFT!

EXTRA-RAPID for EXTRA-HAZARDOUS FIRE RISKS: Chlorobromomethane, science's new wonder chemical in pressurized charges. Approved by F.O.C. You've never seen anything like it!

NU-SWIFT LTD · ELLAND · YORKS
In Every Ship of the Royal Navy

"KLEENOFF" *
THE COOKER CLEANER
"KLEENOFF"
FIBRE BRUSHES
RUBBER MOPS
"KAY-DEE" *
KETTLE DESCALER

For resale to the public, and in bulk for Works use.

BALE & CHURCH, LTD.
7, CROMPTON WAY, CRAWLEY, SUSSEX

APPOINTMENTS VACANT

The engagement of persons answering these advertisements must be made through a Local Office of the Ministry of Labour or a Scheduled Employment Agency if the applicant is a man aged 18-64 inclusive or a woman aged 18-59 inclusive unless he or she, or the employment, is excepted from the provisions of the Notification of Vacancies Order, 1952.

A SENIOR ASSISTANT is required for the Research and Development Laboratory in the Heating Division of a large firm in East Yorkshire, manufacturing heating and hot water appliances. Applicants should have had experience of technical research, combustion of fuels, cast iron foundry practice, design and application of heating apparatus. Age around 30 to 35 years. Excellent prospects for the right man, who must be a keen and energetic worker, with confidence and ability to prove himself by results. Superannuation scheme. Apply in writing in the first instance, giving full details of experience, qualifications and education, stating whether married or single, and giving present salary to Box A.122, Central News, Ltd., 17, Moorgate, London, E.C.2.

WALES GAS BOARD

WREXHAM GROUP
GROUP TECHNICAL ASSISTANT

APPLICATIONS are invited for a TECHNICAL ASSISTANT to serve the Wrexham and Montgomeryshire Groups of Undertakings.

Applicants should be qualified by training and experience to undertake the technical supervision of gas manufacturing processes in a Group of Undertakings and should hold, at least, the Ordinary Certificate (Manufacture) of the Institution of Gas Engineers.

Ability to drive a car is a desirable qualification.

The salary will be in accordance with Grade A.P.T. VA (£480/560 per annum) of the National Salary Scales for Gas Staffs and the successful candidate will be required to pass a medical examination and to contribute to the Board's Superannuation Scheme.

Applications, stating age, qualifications and experience, together with the names of two referees, should reach the undersigned not later than April 27, 1954.

C. B. MAWER,
Secretary.

2, Windsor Place,
Cardiff.

WALES GAS BOARD

APPOINTMENT OF
DISTRIBUTION ENGINEER—
SWANSEA UNDERTAKING

APPLICATIONS are invited from suitably qualified persons for the above appointment, for which the salary will be within Grade XII A.P.T., Provincial 'A' (£765-£890) commencing at a figure commensurate with qualifications and experience. A house in a good residential district will be made available at a reasonable rental.

Applicants should be experienced in Modern High/Low Pressure Gas Distribution Practice, including mainlaying, planning, also consumer service and showrooms. The person appointed will be expected to perform Group Distribution duties.

The successful applicant will be required to pass a medical examination (if not already a member of a Gas Board Pension Scheme) and to join the Wales Gas Board Pension Scheme.

Applications stating age, experience, professional qualifications, and particulars of training, together with the names of two referees, should be received by the undersigned not later than April 21, 1954.

A. PICKARD, M.Inst.Gas E.,
M.I.I.A.,
General Manager & Engineer.

Wales Gas Board,
Swansea Undertaking,
Oystermouth Road,
Swansea.

JERSEY GAS LIGHT CO., LTD.

APPLICATIONS are invited for the position of JUNIOR TECHNICAL ASSISTANT (WORKS) at a salary of £350 rising to £450 by four annual increments of £25 subject to satisfactory service, and should reach the Managing Director, Jersey Gas Light Co., Ltd. 97, Bath Street, Jersey, C.I., before April 27, 1954.

BENHAM & SONS, LTD.

COOKING, HEATING & VENTILATING ENGINEERS,
100, GARRATT LANE, S.W.18.
require

DESIGN DRAUGHTSMEN for their Wandsworth Works. Previous experience in the design of heavy duty cooking appliances preferred, but not essential. Pension scheme, staff restaurant. Write to the Works Manager, stating age, experience, qualification and salary required. Strictest confidence guaranteed.

SOUTH WALES GAS GRID

ASSISTANT GRID CHEMIST

APPLICATIONS are invited from suitably qualified persons for the position of ASSISTANT GRID CHEMIST to the South Wales Gas Grid.

The work involved includes the chemical testing of gases from sources within the area of the South Wales Gas Grid.

Applicants should have had previous experience in a Gas Works Laboratory and be conversant with the control of gas works plant.

The salary will be within the range A.P.T. IV or A.P.T. V according to qualifications and experience. The successful candidate will be required to pass a medical examination and, if eligible, to subscribe to the Board's Staff Pension Scheme.

Applications stating age, training, qualifications and experience and giving the names of two referees should be addressed to the undersigned to be received not later than May 1, 1954.

C. B. MAWER,
Secretary.

2, Windsor Place
Cardiff.

EAST MIDLANDS GAS BOARD

NOTTS & DERBY DIVISION
HOME SERVICE ADVISER—
DERBY UNDERTAKING

APPLICATIONS are invited for the position of HOME SERVICE ADVISER with the Derby Undertaking. Salary range £296-£448 per annum, the commencing salary to be commensurate with the capabilities of the successful candidate.

Candidates must be capable of working independently and be in possession of a recognised Diploma in Cookery and/or Domestic Science. They should be proficient in the practical demonstration of gas cooking, laundering and other appliances, and be able to advise consumers on all domestic problems involving the use of gas in the home.

The person appointed may be required to pass a medical examination, and unless already subject to a pension scheme by virtue of the Gas (Pension Rights) Regulations, 1950, will be required, if eligible, to join the Board's Staff Pension Scheme within six months from taking up the appointment.

Applications stating age, experience and present position, and giving full particulars of training and qualifications, together with the names of two referees, should reach the undersigned not later than Saturday, May 1, 1954.

K. L. PEARCE,
Divisional General Manager.

Friar Gate,
Derby.

PATENTS

KINGS PATENT AGENCY, LTD.
(Director, B. T. King, A.I.M.E., Patent Agency) Advice, Handbook, and Consultations free. 146a, Queen Victoria Street, London, E.C.4. 'Phone: City 6161.

PUBLICATIONS

GAS ACCOUNT CALCULATORS

SUPPLIED either by Price per Therm or Thousand, for any specified Calorific Value, in book form, office charts, or pocket charts for Meter Inspectors, printed in clear type. Write for particulars to F. H. WAKELIN, LTD., Calculator Specialists, 354, WHEELER STREET, BIRMINGHAM.

'Phone: Northern 0989. 'Grams: Reckoners, B'ham.

MISCELLANEOUS

SMALL single truckloads and larger quantities of good ROUGH BREEZE from any gasworks, large or small, in the United Kingdom required by merchants paying own railway tolls. Cash price and particulars to: No. 9378, *Gas Journal*, 11, Bolt Court, Fleet Street, London, E.C.4.

STEREO SLIDES STIMULATE

interest in a given commodity and enhance the potential of the Sales Staff. They can be used in a far more realistic way than black and white photographic prints to show off heavy machinery or a factory site. Understanding of blue-prints, service manuals, and the arrangement of complex machinery, cabling, piping, and lagging, to mention but a few examples, is made straightforward with the aid of 3-D colour slides. The foregoing remarks are addressed to the go-ahead Sales Managers, Maintenance Equipment Officers, P.R.O.s, and Publicity Managers. It will not cost them more than a 'phone call or a 2½d. stamp to find out more about this medium which is an up-to-date rendering of a very old principle. Enquiries to: **Walter King Photography, 11, Bolt Court, London, E.C.4.**, who are always in the lead with the latest developments of photography. And to firms whose policy it is to present regular pictures by means of projected slides, we have also something to offer—on 3-D lines of course!

THE BRITISH GAS PURIFYING MATERIALS CO., LTD.

NATURAL BRITISH.

BOG (DUTCH and DANISH) ORE.

SPENT OXIDE.

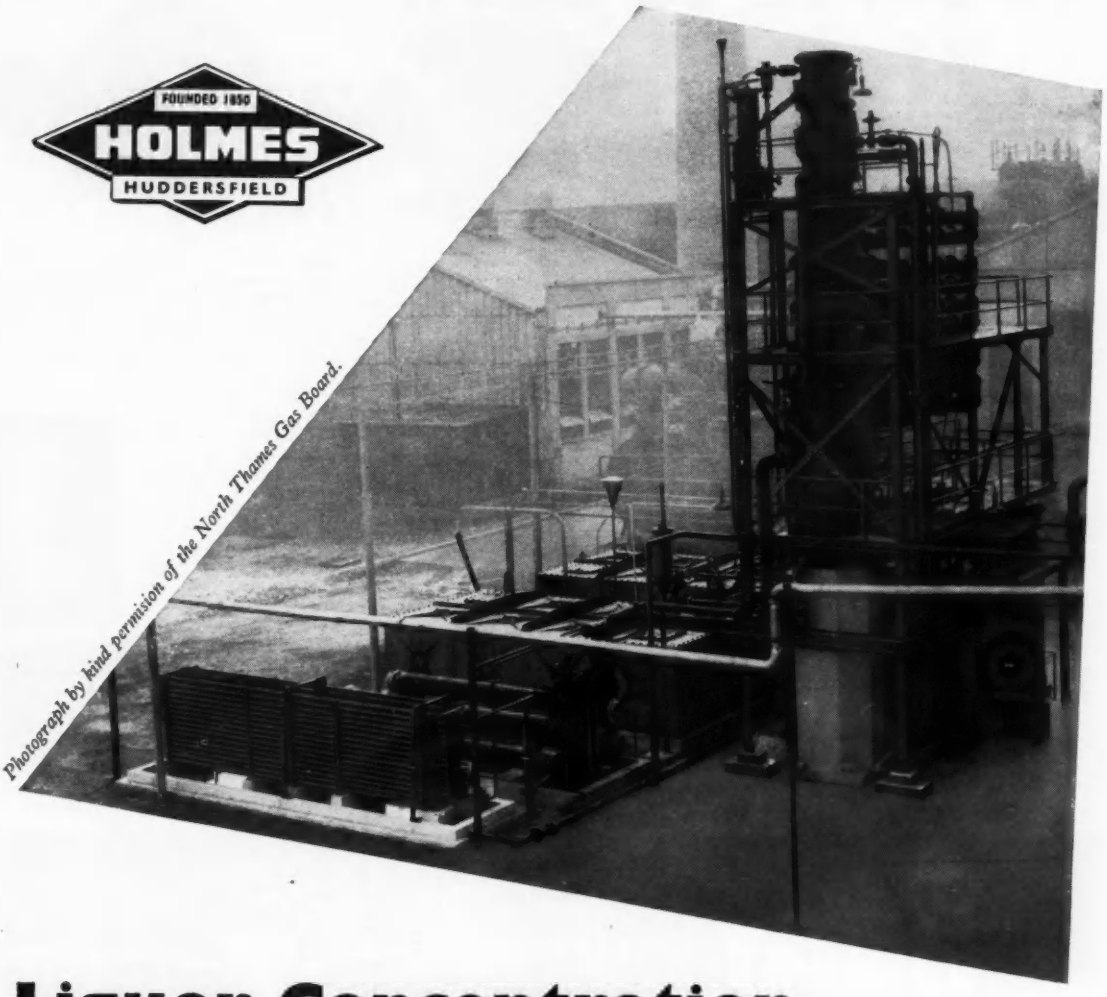
LONDON ROAD, LEICESTER.

Telegrams: "BRIPURIMAT"
Telephone: 59086

STRINGER BROTHERS
ALBION WEST BROMWICH

S.B
IRON & STEEL
PLATES & SHEETS
BARS & SECTIONS
Telephone:
WEST BROMWICH 0436-7

FOUNDED 1850
HOLMES
HUDDERSFIELD



Liquor Concentration

A recent plant to treat 7,200 gallons per day of raw liquor with heat exchange between raw and stripped liquors.

W. C. HOLMES & CO. LTD.

HUDDERSFIELD • LONDON • BIRMINGHAM

Tel: Huddersfield 5280 London: Victoria 9971 Birmingham: Midland 6830

Complete by-product recovery plant for the Gas Industry

C 1892

we serve to burn

"Fishtail" type burner *with two-armed stamped pattern injector for heating liquid in tanks by submerged horizontal combustion tubes. For use with low pressure gas supplies.*
Size Range: *1", 1¼", 1½", 2" and 2½" outlets.*
Capacity Range: *45-280 cu. ft. of gas per hour.*

Note.—These four burner heads are for high pressure gas or low pressure gas and air blast.

Brass non-blow-off head types: *deal with 5 to 10 cu. ft. of gas per hour.*

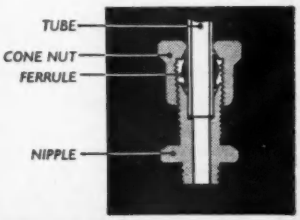
Stainless steel, "F" type head, burner: *deals with 8 cu. ft. of gas per hour.*

Perforated head type burner: *deals with 10 or 15 cu. ft. of gas per hour.*

Type 2 Mixture Controller, *for controlling quality of air/gas mixture irrespective of varying pressures and resistances. Temperature control is varied by manipulation of the air cock only.*
Capacity Range: *from 130 to 1380 cu. ft. of gas per hour according to air pressure (¼ lb. to 1 lb.) and size. For low pressure gas systems.*
Air Inlets: *1", 1¼", 1½" and 2" diameters gas thread.*

DID YOU KNOW?

KEITH BLACKMAN have been making compression joints for many years and the present design embodies features developed as a result of this long experience. Notice that the shape of the ferrule is such that the joint is made without unduly stressing the tube.



INDUSTRIAL GAS EQUIPMENT

Keith Blackman LIMITED

MILL MEAD ROAD, TOTTENHAM, LONDON, N.17

'Phone: Tottenham 4522 (twelve lines). 'Grams: "Keithblac, Norphone, London."

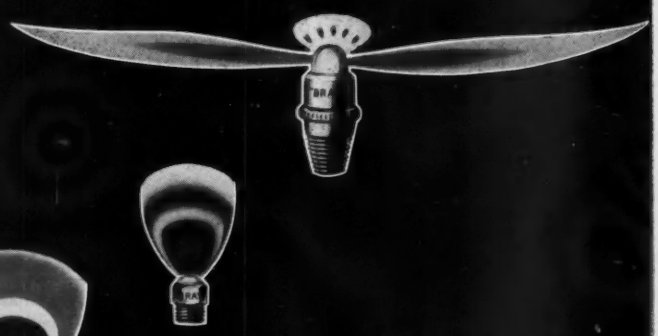
BRANCH OFFICES AT MANCHESTER, BIRMINGHAM, LEEDS, GLASGOW, NEWCASTLE-ON-TYNE, PENARTH near CARDIFF, AND BELFAST

510

BRAY

NEAT GAS JETS

NON-ATMOSPHERIC AND
ATMOSPHERIC TYPES



for COAL GAS
ACETYLENE
BUTANE · PROPANE
NATURAL GAS
METHANE Etc.

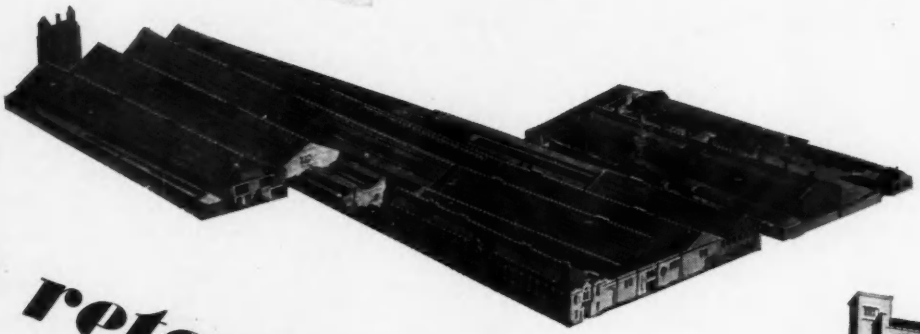
GEO. BRAY AND CO., LTD. LEICESTER PLACE, LEEDS 2

Tel. Leeds 20981/9

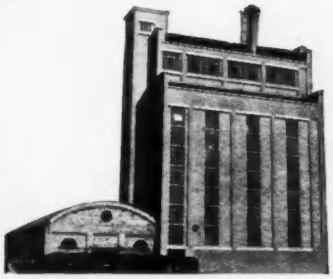
Grams. "Bray Leeds 2"

Registered as a Newspaper. Printed by STRAKER BROTHERS LTD., E.C.2 for WALTER KING LIMITED, 11, BOLT COURT, FLEET ST., LONDON, E.C.4, Wednesday, April 21, 195

research plant



to retort house



Direct control over production is an important factor in the efficiency of Glover-West carbonization plant. Here, in our own Works, new devices are developed and tested on a full-scale research gas installation. Retort bench equipment and mechanical handling gear for Glover-West contracts are manufactured and assembled. Close contact between planning and construction contributes vitally to high performance in the finished plant.

WEST'S GAS IMPROVEMENT CO. LTD

ALBION IRONWORKS · MILES PLATTING · MANCHESTER 10

Telephone : COLlyhurst 2961 Telegrams : Stoker, Manchester

London Office : Columbia House, Aldwych, W.C.2. Phone : HOLborn 4108-9 Grams : Wesgasco, Estrand

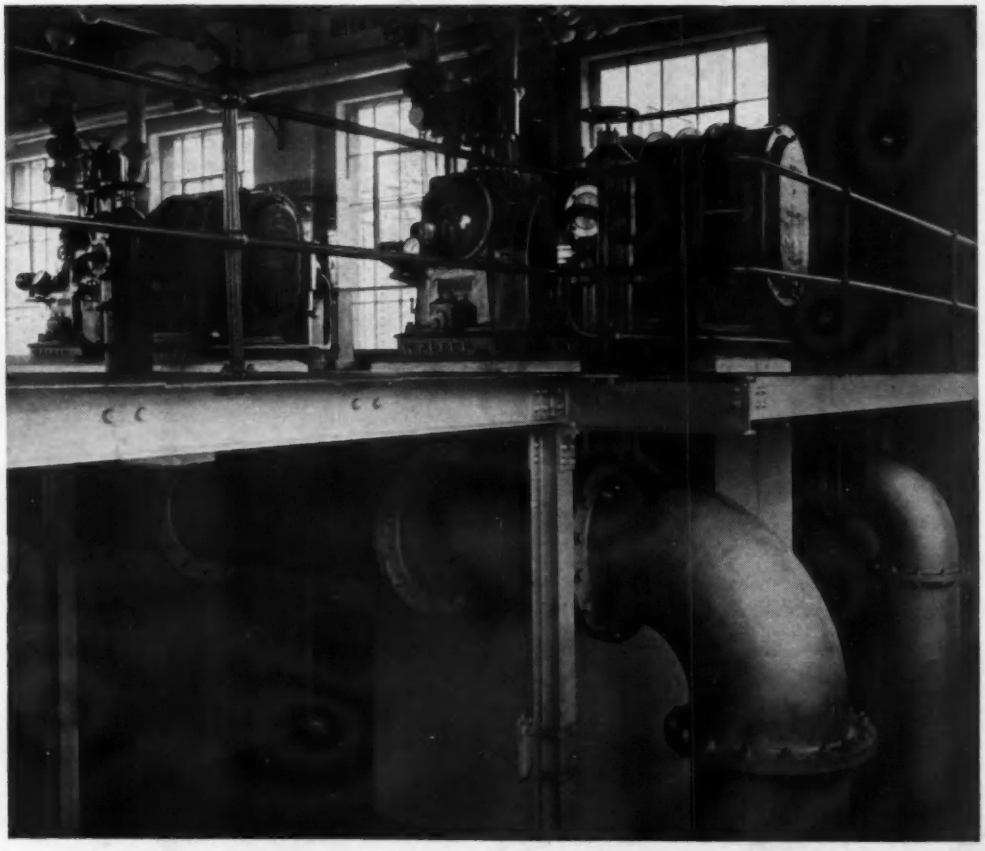
GW1

SIMPLICITY

The photograph below
illustrates clearly how simply the inlet and outlet
connections and foundations can be arranged when

WALLER EXHAUSTERS AND **BOOSTERS**

are installed. If overhead connections are used it is equally simple.



Photograph by courtesy of Eastern Gas Board.

GEORGE **WALLER** & SON LTD.

PHOENIX IRON WORKS, STROUD, GLOS.

Members of the Society of British Gas Industries

Telephone—Brimscombe 2301 Telegrams—Waller, Stroud.